

## List of requirements and technical specifications

### 1. Introduction and objectives

The major goal of the program is to promote SARD in ATU Gagauzia and Taraclia through opportunities to increase local development. One of the opportunities and/or components to support the development of local improvement projects/infrastructure development of small scale in rural areas of the region. This intervention intends, by the way, removing deficiencies, identified in the documents of the Republic of Moldova of strategic development of regions, as are the national development regional strategy for rural development and Agriculture, etc. Moldova 2020. 41 communities from UTA Gagauzia and Taraclia district will follow a participatory process of developing capacities. This action will facilitate the establishment of partnerships with local community groups, district and local public administrations, NGOs and other actors of local development.

Technical assistance will be provided in the areas of competence of local public administration authorities (LPAS), such as utilities, health, education, social protection, and others. 20 town councils from UTA Gagauzia and r. Taraclia will receive technical and financial support to improve the quality of local services and rehabilitate infrastructure at the local level through the implementation of investment projects in communities.

### 2. The scope of work and the beneficiary communities

2.1 The contents of the work usually will provide the following types of works: constructions works, installation of equipment for pumping and filtering drinking water, water purification, automation, etc.; electrical works, installation of water and sanitation networks, landscaping works, testing and commissioning of systems for drinking water filtration and purification of wastewater, outdoor lighting system; and commissioning activities. All these kind of works and activities will contribute to improving the living conditions of the population in communities in ATU Gagauzia and Taraclia through *the EU Programme - "SARD"*.

2.2 construction works, for which it launched this request for tender, are grouped into 4 (four) lots, as follows in the table below:

<b>Batch</b>	<b>Locality</b>	<b>Name of project proposal</b>
<b>Lot 1</b>	Avdarma, Gagauzia	<i>Energy conservation measures in the "Dimitrii Celenghir" Lyceum and village kindergarten</i>
	Comrat, Gagauzia	<i>Improving access and crossing ways to the village kindergartens</i>
<b>Lot 2</b>	Copceac, Gagauzia	<i>Access to urban sewerage system in the Copceac village</i>
	Chirsova Gagauzia	<i>Development of new water access point and connection to the community kindergartens and schools</i>
<b>Lot 3</b>	Budai, Gagauzia	<i>Construction of sewerage network connected to the wastewater treatment plant and social buildings</i>
	Chiriet Lunga, Gagauzia	<i>Development of new underground water sources and providing drinking water to the community</i>

<b>Lot 4</b>	Taraclia, d. Taraclia	<i>Energy conservation Measures at kindergarten no. 4</i>
	Balabanu d. Taraclia	<i>Energy conservation measures and improve sanitary conditions at the kindergarten in the village</i>

2.3. The projects referred to in these settlements include the following construction works:

#### **Avdarma Village**

- Thermo-insulation of exterior walls of the Lyceum with insulating materials and painting of facades;
- Thermo-insulation of the floor of the bridge high school with mineral wool boards on anti-condensation foil polyethylene;
- Exterior wall (Cap high school) with ceramic tile-granite;
- Thermo-insulation of exterior walls of the kindergarten of the village with insulating materials and painting of facades;
- Thermo-insulation of the floor of the kindergarten with mineral wool boards on anti-condensation foil polyethylene;
- Exterior wall (low level wall kindergarten) with ceramic tile-granite;
- Removing and replacing the existing system for the collection and disposal of water from roofs of buildings of high school and kindergarten;

#### **Balabanu Village**

- Capital repairs of the kindergarten roof with materials polymer-bitumen;
- Installation of a new system of rainwater on the roof of the building;
- Thermo-insulation of exterior walls with insulating materials and painting of facades;
- Partial change of the Windows and exterior doors with PVC frames, aluminum, painted in a row;
- Creating inner sanitary conditions for children and workers of the kindergarten;
- Interior: repair works, floors, ceilings, walls, etc.;
- Exhaust/works re-targeting rainwater on the awnings and parasols kindergarten territory;

#### **Chirsova Village**

- Drilling of an artesian well (well 1), 190 mm diameter and depth 250 m;
- Construction of the new station (underground) water pump;
- Drilling of an artesian well (well 2), 190 mm diameter and depth of 130 m;
- Construction of the new station (underground) water pump;
- Construction of a new water service station, " Rojnov Tower", with a capacity of 50 m<sup>3</sup>;
- Construction of a new aqueduct water towards until existing networks of water distribution in the village;
- The unique arrangement of sanitary area, construction of the new fence and paving access roads for artesian wells and water tower;
- The installation of filters of water purification of household at the hostelry in kindergartens and schools in the village;

#### **Copceac Village**

- Construction of networks of social objects connected to the urban sewage system;

- Construction of networks to connect individual households. 300 households in the village to the municipal sewer system;
- Partial restoration works to roads, pavements and planning of construction works affected by the new sewage networks;
- Transportation of waste after carrying out the work;

### **Comrat City**

- Capital Renovation of some roadways, passes the territory of six kindergartens for children, with the replacement of road coating and/or existing path (from the damaged asphalt) with a new modern ecological clean quality stone pavement;
- Fitting new bordures along with the areas rehabilitated pavement/crossings;
- Planning related to rehabilitated pavements (leveling land in the places accessible, as appropriate);

### **Taraclia City**

- Thermo-insulation of exterior walls of kindergarten children no.4 with insulating materials and painting of facades;
- Exterior wall (Cap kindergarten) with ceramic tile-granite;
- Removing and replacing the existing system for the collection and disposal of stormwater from roofs of kindergarten buildings;
- Change the old Windows and exterior doors with PVC frames, aluminum, painted in a row;

### **Chiriet Lunga Village**

- Drilling of a new artesian well, diameter and depth of 400 m 219mm;
- Construction of water pumping station;
- Construction of a new water reservoir, " Rojnov Tower", with a capacity of 50 m<sup>3</sup>;
- Construction of a new aqueduct water up to existing networks of water distribution in the village;
- The arrangement of the area, construction of the fence with galvanized metal and paving access roads with gravel to well water and water tower;
- Liquidation of existing water well # 986;

### **Budai Village**

- Construction and connecting the social buildings of the village to the centralized sewage system;
- Construction of access networks to individual households. 40 households, from the village to the centralized sewage system;
- Partial renovation works for roads where pavements and planning of construction works is affected by the new sewage networks;
- Rehabilitation to be assembled with new sanitary equipment and indoor plumbing to connect nodes from kindergarten children to the sewage network;
- Building an individual stops water from household objects and the houses in the village;
- Connecting WWTP to electric networks;
- Arrangement of sanitary zone of WWTP;

2.4 the contractor must provide everything that is necessary for the successful execution of the contract: work, engineering, materials, equipment, materials, transportation, support equipment, gear, travel required to carry out all the work for this contract.

*Typically, the contract will include the following activities:*

- ***purchase and delivery of the objects*** materials, equipment, and services needed for successful completion of the work;
- ***construction site preparation for the storage of materials, equipment and execution***
- ***the construction and installation of equipment*** in buildings, sewer networks, WWTP, electrical grids, water networks, landscaping, etc., mentioned above;
- ***commissioning of*** installed systems, equipment, and construction materials, including conducting performance tests and putting into service (if applicable);
- ***the transmission of detailed documentation of operating and maintenance*** of objects and systems installed (if applicable);
- ***Organization of training and instructional materials transmission*** , operators responsible for authorized beneficiaries;

2.5 All equipment proposed by the contractors must be manufactured in accordance with technical requirements, guidelines and specifications requested below; to have European Certificates and/or certificates, confirming data from technical passports. The contractor must, likewise, to ensure that all materials, equipment and activities related to construction and fitting under the contract, before being executed, to be coordinated with representatives of beneficiary and UNDP Moldova: for day-to-day supervision and periodic monitoring of the work in the field.

***Note to bidders:***

***Whenever technical specifications require a specific brand, product name/model, bidders can come up with a proposal for the any other similar product equal in all respects to the product specified, satisfying the requirements of origin, all physical parameters, functional and performance.***

### **3. Construction site**

The works announced in the subject competition will take place in localities, according to the above-mentioned lots.

### **4. Organizational arrangements**

The implementation of each project and execution on the ground will be monitored by the Engineer-Consultant, appointed by UNDP, which will conduct systematic monitoring visits to the construction site. Additionally, the engineer-technical responsible, authorized by the local public Authorities, the project's beneficiaries, will provide daily supervision of construction activities specified in the contract.

### **5. Expected results**

In each case, the Contractor will be expected for the following *results*:

**Result 1 :** Finishing all construction, delivery and installation of equipment, connecting to networks of electricity, water, sewerage, planning, etc., as set out in the contract documents, within a period of not more than **120 calendar days** from the date of signing the contract.

**Outcome 2:** The final commissioning of the works in a term: **90 days calendar days - up to 6 months**, depending on the type of contracted works, from the date of receipt of the site to the completion of the works, including equipment delivery and installation, testing, commissioning, training of operators, transmission and (if applicable).

## **6. The main requirements and Technical Specifications**

### **6.1 " Energy conservation measures in the "Dmitrii Celenghir" Lyceum and village kindergarten Avdarma"**

6.1.1 The specifications provide thermo-insulation of exterior walls and bridge it the secondary school and kindergarten with durable insulation materials and technology applicable in Moldova. Subsequently, painting insulating all the facades. For this work, will take into account *the following main specifications and technical requirements:*

a. *Façade:* The exterior walls to facades, window sills and the socket, it will apply a coat of primer manual quartz "Betoncontact". Front exterior walls with smooth surface, it will perform with EPS100mm foam board; Socket-polyester XPS100mm laminated, coated with ceramic tile-granite; it dips-with rock wool type "Izover", density 135kg/m<sup>3</sup>, with rigid fixation of thermo-isolation, fine plasters  $\delta = 5$  mm with dry mixture of cement based on insulation, a layer of primer quart "Gleta" and 2-3 mm plaster "Tinc".

\* *EPS :* The thickness of 10 cm; Density 15 kg/m<sup>3</sup> [GOST EN 1602] or better; Thermal conductivity W/mk 0038 [SM EN 12667] or better; declared value of compressive stress at 10% deformation thickness 70 kPa [SM GOST R EN826] or better; Fire classification (extinct in its own right). E (MS. SR. EN13501-1 + A1) or better

\*\* *XPS :* The thickness of 10 cm; 26 kg/m<sup>3</sup> density [GOST EN 1602] or better; Thermal conductivity 0035 W/mk [SM EN 12667] or better; declared value of compressive stress at 10% deformation of thickness of 200 kPa [SM GOST R EN 826] or better; Fire classification (extinct in its own right). E (MS. SR. EN13501-1 + A1) or better

b. *Isolation of interior Windows/doors:* If the window is not at the same level with the outer wall façade, interior will be insulated with mineral wool with density 135kg/m<sup>3</sup> and at least 30 mm thick.

c. All materials and components including insulation plates, adhesive materials, plasters, paint etc. must be suitable for use in exterior buildings and to be exposed to the most extreme weather conditions from the location of the building.

d. All metal parts must be manufactured especially for use in external thermal insulation systems and applied according to the manufacturer's instructions to prevent corrosion.

e. All corners will be strengthened with special corner profiles and two layers of netting; Horizontal edges at the top of the Windows/doors and other parts of the building will be reinforced with a special profile of drip edge to prevent ingress of water into the soffit.

f. Special attention will be paid to details regarding ventilation channels to avoid closing them during deployment of the insulation.

6.1.2 Thermal planches bridge high school and kindergarten children will be perform with mineral wool boards 100 mm thick ; Insulation System of the floor of the bridge comprises mainly: (i) diffusion layer and vapour barrier; and (ii) insulation material mentioned below; Thermal insulation materials for use in local conditions are mineral wool (MW) with the following minimum technical characteristics:

*a. mineral wool MW:* characteristics: thickness 100 mm; Density-35 kg/m<sup>3</sup> (GOST EN 1602) or better; thermal conductivity W/mk-0044 (SM EN 12667) or better; declared value of compressive stress at 10% deformation of thickness-25 kPa (SM GOST R. EN826) or better; Fire class (faded standing)-Cl (SM.SR. EN13501-1 + A1)

*6.1.3 The main works to be taken into account in the implementation of the contract:*

a. the contractor must deliver a finished external thermal insulation properties of thermal insulation, mechanical strength, quality, safety, durability, fire resistance, environmental protection, aesthetics, and without cracks, faults and moisture problems.

b. the contractor must at least perform: preparation, installation of all necessary auxiliary constructions (scaffolding, etc.) and all the necessary safety measures; Removing cables, external units from air conditioning systems, plumbing drainage of rainwater, etc. and reinstalling them or replacing them with new songs after the end of the work (if applicable); Wall preparation: verification of walls, removing unstable parts and fixing them; Applying successive layers of insulation in accordance with the technical specifications, instructions of the manufacturer and good engineering practices; Installing support bars of aluminium at the corners of the roof horizontal and other items from the upper edge of the thermal insulation of type <sup>TM</sup> to prevent ingress of water into the layers of insulation (if they aren't already covered by the means); Isolation joints between construction units adjusted, preventing air circulation and protection from the rain (if applicable); Remove all auxiliary constructions, cleaning and transporting the residues area to an area of storage.

## **6.2 " Improving access and crossing ways to the village kindergartens in the city of Comrat"**

The specification includes construction work and/or capital repairs of some portions of roadways and sidewalks toward 6 kindergartens in the city of Comrat, including replacement of existing deteriorated asphalt surfaces with modern stone pavement.

*Paving:* stone slab-cement-sand mixture from pressed,  $\delta = 40$  mm, mostly of the rectangle form, for at least 2 colours, borders with 500x210x60mm fixed in concrete monolith B 7.5 200x100mm;  $\delta = 50$  mm layer of cement-sand mixture dry (FR. sand 0-4 mm clean) in the proportion of  $\frac{1}{2}$ , on a layer of gravel at least 300 local brand M, 100 mm thick, compacted into earth with compactor pneumatic/petrol portable weight-130-500 kg. The layer of sand so compacted bedding and vibratory plate, supplemented with sand scattering "loss" and levelled.

For mounting the pavement and kerb it is necessary to establish the exact configuration of the land that will be arranged by tracing and paved area of the picket. Then, depending on the type of site (garden, driveway, sidewalk, roadway, etc.), the type, thickness, colours and necessary elements of paving, curbs and drains.

In the places that are going to be paved it removes the layer of surface earth in thick 100 ÷ 350 mm (if applicable). If the surface is plate, then during excavating will create a slight slope for drainage of surface water. It will remove all the roots and weeds. The gaps will be filled with gravel and ballast/compact, later to compact the paved platform surface.

***Important:** Paved Surface must have a slope for the drain of 1% which will direct the water towards the drainage of the outlet or to a plot uncovered.*

When the paving is mounted on the base layer or crushed stone ballast, is drafting the groove for foundation settlement and borders after compacting the base layer. For paving mounted on flexible layer or crushed stone ballast, it achieves a digging foundation continue with depth of 100-150 mm width of the foundation must be greater than 100 mm minimum border width to permit internally routed them. A layer of 25 mm mortar (1:3 cement: sand) that sits the borders. Internally routed borders are done with concrete, making sure that at least ½ from the height of the border is covered so that it can retrieve the pushings from the paved area.

The borders will be mounted without joints or joints with 8-10 mm filled with mortar (a mixture 1:1 cement-sand). The joints must be filled in completely and thoroughly compacted. Borders may be fitted with unfilled holes of 2-3 mm.

Fitting of paving elements on the layer of sand is done simply by their location in the desired configuration. Between paving remains a gap of 1-2 mm. bringing the level is done by using a rubber Mallet, with mild headaches. After finishing the settlement paving elements on the layer of sand will fill the joints with sand, then will sweep well paved surface. If necessary, they will refill the joints and will sweep the surface again.

Grass: leveling the land fertile in places accessible to the adjacent sidewalk (if applicable);

### ***6.3 "Energy conservation measures and improve sanitary conditions at the kindergarten in the village of Balabanu"***

6.3.1. Capital repair works of the kindergarten includes: roof repair materials and modern polymer-bituminous; repair of front wall claddings; changing part of windows and exterior doors; the application layer on the facades with modern materials made of thermo-insulating at entrances. For this work, will consider *the following main specifications and technical requirements:*

*a. Roof:* roof repair will be done with rolling roof membranes, polymer-bituminous materials, in two layers, which must comply with the following characteristics: (i) *the lower layer:* membrane reinforcement polyester tape;  $\delta \geq 2.6$  mm, weight  $\geq 5.25$  kg/m<sup>2</sup>, breaking strength on length  $\geq 600$ kg;  $\geq 400$  kg fossil skull side; keeping flexibility announced temperature of up to -25 ° C, the level of water absorption in 24 hours-1% of their weight; water resistant at a pressure of 0.2 Mpa within 2 hours; temperature-resistance up to 100 ° C; (ii) *the top layer:* membrane reinforcement polyester tape;  $\delta \geq 4$  mm, weight  $\geq 3.0$  kg/m<sup>2</sup>, breaking strength on length  $\geq 600$ kg; on the side of  $\geq 400$  kg fossil skull; keeping flexibility announced temperature of up to -25 ° C; the level of water absorption in 24 hours-1% of their weight;

water resistance absolute pressure 0.001 Mpa, within 72 hours; temperature-resistance up to 100 ° c.

Roller blinds, each layer will be made along the buildings, starting from the top to bottom.

*b. Windows and exterior doors:* exterior windows and doors from PVC with PVC profile frames, doorframe metal core with  $\delta \geq 1.5$  mm thickness, frames with no less than three rooms, insulated profile thickness  $\delta \geq 60.0$  mm; thickness wall claddings you  $\delta \geq 3.0$  mm profile insulating thickness  $\delta \geq 24.0$  mm; security for profile not less than 30 years; for double glazing guarantee not less than 10 years, to withstand hardware payback 40,000 openings (or 35 years) and to withstand a load up at 135kg; must be equipped with micro-ventilation; inside with white PVC; external corrosion protection of metal painted white;

*c. Façade:* The exterior walls to facades, window sills and the socket, it will apply a coat of primer manual quartz "Betoncontact". Front exterior walls with smooth surface, it will perform with EPS100mm foam board; Socket-polyester XPS100mm laminated, coated with ceramic tile-granite; it dips with rock wool type "Izover", density 135kg/m<sup>3</sup>, with rigid fixation of thermo-isolation, fine plasters  $\delta = 5$  mm with dry mixture of cement based on insulation, a layer of primer quartz "Gleta" and 2-3 mm plaster "Tinc".

\* *EPS* : The thickness of 10 cm; Density 15 kg/m<sup>3</sup> [GOST EN 1602] or better; Thermal conductivity W/mk 0038 [SM EN 12667] or better; Declared value of compressive stress at 10% deformation thickness 70 kPa [SM GOST R EN826] or better; Fire classification (extinct in its own right). E (MS. SR. EN13501-1 + A1) or better

\*\* *XPS* : The thickness of 10 cm; 26 kg/m<sup>3</sup> density [GOST EN 1602] or better; Thermal conductivity 0035 W/mk [SM EN 12667] or better; Declared value of compressive stress at 10% deformation of thickness of 200 kPa [SM GOST R EN 826] or better; Fire classification (extinct in its own right). E (MS. SR. EN13501-1 + A1) or better

*d. Isolating Windows/doors:* If the window is not at the same level with the outer wall façade, *Windows/doors* will be insulated with mineral wool with density 135kg/m<sup>3</sup> and at least 30 mm thick.

e. All materials and components including insulation plates, adhesive materials, plasters, paints etc. must be suitable for use in exterior buildings and to be exposed to the most extreme weather conditions from the location of the building.

f. All metal parts must be manufactured especially for use in external thermal insulation systems and applied per the manufacturer's instructions to prevent corrosion.

g. All corners will be strengthened with special corner profiles and two layers of netting; Horizontal edges at the top of the *Windows/doors* and other parts of the building will be reinforced with a special profile of drip edge to prevent ingress of water into the soffit.

h. Particular attention will be paid to details regarding ventilation channels to avoid closing them during deployment of the insulation.

#### **6.4 " Access to urban sewerage system in the Copceac village"**

*The new urban sewage system will be built according to the documentation project nr. 01/16-CE, which provides a sewer network of pipes PVC Ø160 SDR41, SN4/-200 mm on a sand bed  $h = 100$  mm. All construction works execution shall be carried out in accordance with the requirements of SNIP 3.05.04-85 and SN 478-80. The depth of sewage pipes track layout after relief in accordance with the documentation project. In places with hard, dry soil, it is requested for the preparation of a bed of sand with thickness of 100 mm.*

*Manholes: in prefabricated concrete rings, КЦ10-6, КЦ1-10, Ø1000mm, concrete-portland cement with increased impermeability, ensuring through water/cement proportion equal to 0.55, GOST 22266-76, cast iron block, cover all exterior surfaces will be waterproofed with a coating of mastic application  $\delta = 5$  mm. from the bottom of the Home Plate will be mounted on a layer of sand,  $\delta = 100$  mm. painted metal entirety two times with paint ПФ-115 GOST 6465 76 on a layer of priming ГФ-021 GOST 25219-87. Tubes: in passages through walls, steel pipes from Ø273mm.*

*Wastewater treatment plant: Wastewater from individual homes and public objects of dwelling shall be discharged by the sewage treatment plant built towards the station in the village.*

#### ***6.5 "Development of new water access point and connection to the community kindergartens and schools. Chirsova village"***

a. The project envisages two artesian wells drilling: probe No. 1 with depth  $h = 250$  m and 5.0 m<sup>3</sup>/hour or 192.0 m<sup>3</sup>/24 HR; probe No. 2 with  $h =$  depth of 130 m and yield of 4.0 m<sup>3</sup>/hour or 96.0 undifferentiated m<sup>3</sup>/24hrs. Diameter probes varies- $d = 190, 394, 490$ mm;

***Important: Technical parameters of drilling rigs, specifications and connecting nodes pipes tubing with  $d = 426 \times 10$ mm and  $d = 168 \times 6$  (7) mm, type and dimensions of filters, submersible pump technical parameters and methodology for carrying out the work of drilling and testing will be carried out in accordance with the requirements and project documentation recommendations no. 2016-13, book I, developed by LLC "Acvaprodar" the licence, MMII No. 033394, of 23.12.2014 and verified by authorised testers (report located in the documentation project).***

b. The project envisages the construction of water distribution network (till the well no. 3 login with existing networks in the community), of sustainable, ecologically clean pipe, polyethylene, with different diameters: Ø 75 mm, 110, 80, SDR 17.6 PN-6bar. The aqueduct was designed in accordance with the requirements of SNiP: 2.04.02 -84; 2.04.03 -85; II-89-80.

c. Pipes mounted on the bed of the foundation, natural light and levelled. The minimum depth of the aqueduct track, including up to bed must be 0.5 m higher than the depth of the soil temperature at "zero" and constitutes 1, 30 m. Soil compaction (bed) under pipelines and manholes will be done manually with compactor. Welding joints on pipes shall be made by

the method of "butt", including through sheet electro contact connectors. Rambling 300 mm with soft soil will be done without inclusion of gravel and compacted by hand.

d. The Project manholes with diameter  $d = 2000$  mm, from prefabricated reinforced concrete elements, per GOST 8020-90 (series ed. 3.900-3.7). Manholes are running according to the project type: 901-09-11.84, cast iron block, cover all exterior surfaces will be waterproofed with a coating of mastic application  $\delta = 5$  mm. from the bottom of plate will be mounted on top of a layer of sand,  $\delta = 100$  mm. All metal elements are painted 2 times with paint ПФ-115 GOST 6465 76 on a layer of priming ГФ-021 GOST 25219-87. In all places of the pipeline crossing through construction of concrete, steel casing-pipe.

e. To ensure uniform distribution of the water on all sectors/networks of water supply, there will be built a water tower, metal reservoir, such as "Turn Rozhnov," volume  $V = 50$  m<sup>3</sup> and height  $h = 15$  m, according to the project type: 901-5-32C with resistance to seismicity equal to 5.0 degrees. Foundation under the tower is provided from arm-concrete monolith, mark (M200), B20. The Foundation of the Tower will be built per the project documentation "Acvaprodar" sheet No. 2016-13-AC-7. From the outside, all construction areas of the Tower will be pruned and painted with paint (БТ-177) in 2 layers, or 2 layers of oil paint on a layer of a high oil containing iron-lead. Interior surfaces will be pruned and painted with 2 coats of paint containing lead-iron on a ground layer of linseed oil.

f. Execution of building works at aqueduct must be made according to SniP 3.05.04 -85 and respecting the requirements of labour in accordance with SniP III-4-80 "technique in construction".

g. Regional planning around the water tower and water probes include the following works: construction of earthworks, fence-fixing sanitary zone, with broken stone paving crossings in the territory around the probe and the Tower, the sowing of turf.

h.: Fence wire mesh No. 50 of galvanised wire BP Ø3mm, 50x50mm cell type "Rabita", mounted on metal masts,  $d = 50$  mm, with welded Ø50x6mm, embed in concrete monolith B 7.5 (M100)-400x400cm, with a depth of 700 mm, with a pitch of 2.50 m, height  $h = 1.6$  m fence. The gates and the pillars of the fence will be some spins in metal with  $d = 100$  mm. All items will be made of metal and painted in green paint.

i. Draft existing electricity connection is made in accordance with the requirements of RED UNION FENOSA S.A. nr. P30102016100008, from 12.10.2016. The connection is made to the existing high voltage probes, near the 10-kW, BL-/F-10/PDC-234, pillar no. 300. Switching voltage 0.4 kV station is made by way of transformation of KTP-type MK-10/0.4/40kW, equipped with a record node type BZUM-TF. Calculation of distribution networks and low-voltage equipment is specified in the documentation of project No. 2016-13-0-AEES/REAE, 1-10, and AEES/AIRS. SU p. 1-2.

*Switchbox for electrical equipment and automation: 1.5 x 1.5 x 2.0 (m)*

a. Walls, Gable, façade: pure brick masonry of burnt clay, (250x120x65), on the mortar-cement, mark M50. Lengths horizontal-vertical-12 mm, 8 mm. On the façade at the entrance

to the building will be fitted to guttering and downpipes cherry color,  $\varnothing = 80$  mm, for the discharge of water from the roof up to the level (+ 0.10). Gutters and downpipes will be fixed to the wall with fasteners of the same colour. On the level (+ 0.08) below the walls will be arranged a coat of hydro-insulating cement mortar-horizontal sand- $\frac{1}{2}$  proportion.

*b. Roof:* load-bearing constructions: maurlat (80x80mm) rafters (80x50mm), boarding (50x30mm) will be resinous conifer wood, painted with 2 coats and antiseptic paint the same with 2 coats of paint, fire wall and together with bolts and galvanized targets; isolation, including both typical protection arrangement-type metal tiles, dark cherry colour made of metal anti-corrosion. painted,  $\delta = 0.55$  mm, shall be fixed in accordance with the manufacturer's recommendations. Wall covering will be not less than 300 mm.

*c. Wall covering and Ceiling* will be covered with a layer of metal white straps, attached to wooden beams 80x80mm. The ceiling between beams will be a layer of bedding isolator type "Izover-13kg/m<sup>3</sup>", such as Isover-Kim-YOU, h = 150 mm. On the outline of the ceiling to the walls will be installed in a metal plinth white corrosion.

*d. Floor:* concrete support Layer B 12.5, h = 100 mm. Floor coverings, stone pavement the grey colour,  $\delta = 25-30$  mm, mounted on a backing layer of plaster glue.

*e. The door:* metal with GR. 3 mm, painted in grey colour, 2 layers, including padlock, 300x100h mm ventilation grille and hold-down bolts, 1.8 x 0.5 m.

*Support:* width b = 500 mm, stone pavement,  $\delta = 40$  mm, placed on a layer of cement-sand mixture dry clean, h = 50 mm, in proportie 1/3, and a layer of compacted gravel in Earth, h = 100 mm. Contour will also curb stone 500x210x60, on a layer of concrete B 7.5.

*f. Ventilation:* natural ventilation shall be provided with ventilation input at the door (bottom) and exit through the  $\varnothing 150$ mm ventilation at the opposite wall on top under the ceiling.

*g. Filter.* installed under the sink, Osmos Nobel Aqua 6 or any other equivalent equipment for water purification, must completely remove not only harmful impurities but also hardness salts. Filter must be fitted with a fuel complex mineral shungit, which purified and softened mineralised water. Filter must be possible installed stationary stationary. He must have a universal mixer with 3 channels and providing filtered water (hot water, cold and filtered). Capacity: between 190-250 liters per day, the degree of purification: 96%-99.9%, and reducing water salinities: 99.9%, and temperature of the water purification: 4 ° C + 40 ° C, maximum working pressure- from 2.8 to 8 ATM, should have a reservoir for clean water: 15 litres (volume of 10 litres)

## **6.6 " Energy conservation measures at kindergarten no. 4 of Taraclia city"**

*a. Façade:* The exterior walls, window sills and the socket, it will apply a coat of primer manual quartz "Betoncontact". Front exterior walls with smooth surface, it will perform with EPS100mm foam board; Socket-polyester XPS100mm laminated, coated with ceramic tile-granite; it dips-with rock wool type "Izover", density 135kg/m<sup>3</sup>, with rigid fixation of

thermo-isolation, fine plasters  $\delta = 5$  mm with dry mixture of cement based on insulation, a layer of primer quart "Gleta" and 2-3 mm plaster "Tinc".

\* *EPS* : The thickness of 10 cm; Density 15 kg/m<sup>3</sup> [GOST EN 1602] or better; Thermal conductivity W/mk 0038 [SM EN 12667] or better; Declared value of compressive stress at 10% deformation thickness 70 kPa [SM GOST R EN826] or better; Fire classification (extinct in its own right). E (MS. SR. EN13501-1 + A1) or better

\*\* *XPS* : The thickness of 10 cm; 26 kg/m<sup>3</sup> density [GOST EN 1602] or better; Thermal conductivity 0035 W/mk [SM EN 12667] or better; Declared value of compressive stress at 10% deformation of thickness of 200 kPa [SM GOST R EN 826] or better; Fire classification (extinct in its own right). E (MS. SR. EN13501-1 + A1) or better

*b. Isolation of Windows/doors:* If the window is not at the same level with the outer wall façade, *Windows/doors* will be insulated with mineral wool with density 135kg/m<sup>3</sup> and at least 30 mm thick.

c. All materials and components including insulation plates, adhesive materials, plasters, paints etc. must be suitable for use in exterior buildings and to be exposed to the most extreme weather conditions from the location of the building.

d. All metal parts must be manufactured especially for use in external thermal insulation systems and applied per the manufacturer's instructions to prevent corrosion.

e. All corners will be strengthened with special corner profiles and two layers of netting; Horizontal edges at the top of the *Windows/doors* and other parts of the building will be reinforced with a special profile of drip edge to prevent ingress of water into the soffit.

f. Special attention will be paid to details regarding ventilation channels to avoid closing them during deployment of the insulation.

### ***6.7. "Development of new underground water sources and providing drinking water to the community - Chiriet Lunga"***

a. The project envisages a drilling artesian wells with water depth  $h = 400$  m and yield of 10.0-12.0 m<sup>3</sup>/hour or 240.0-288.0 m<sup>3</sup>/24hrs. Probe diameter  $d = 219$ mm;

***Important:*** *Technical parameters of drilling of the well, the specifications and the nodes connecting pipes, tubing, filter type and dimensions, technical parameters of the pump submersible and methodology for carrying out the work of drilling and testing will be carried out in accordance with the requirements and project documentation recommendations no. 2016-10, book I, developed by LLC "Acvaprodar", the license of the MMII No. 033394, dated 23.12.2014 and verified by authorised department. Report located in the project documentation.*

b. The project envisages the construction of water distribution pipe (till the well no. 3 with  $d = 1,5$  m), connecting with the existing water networks in the community); the pipeline from sustainable, ecologically clean pipe, polyethylene, diameter:  $\text{Ø}110\text{mm}$ , 80, SDR 17.6 PN-6bar. The aqueduct was designed in accordance with the requirements of SNiP: 2.04.02 -84; 2.04.03 -85; II-89-80.

c. The pipe is mounted on the bed of the foundation, natural light and levelled. The minimum depth of the aqueduct track, including up to the bed must be 0.5 m higher than the depth of the soil temperature at "zero" and constitutes 1,30 m. Soil compaction (bed) under pipelines and manholes will be done manually with compactor. Welding joints on pipes shall be made by the method of "butt", including through sheet electro contact connectors. Rambling 300 mm with soft soil will be done without inclusion of gravel and compacted by hand.

d. The Project provides manholes, with diameter  $d = 2000$  mm, from prefabricated reinforced concrete elements, according to GOST 8020-90 (series ed. 3.900-3.7). Manhole according to the project type: 901-09-11.84, cast iron block, cover all exterior surfaces will be waterproofed with a coating of mastic application  $\delta = 5$  mm. from the bottom of plate will be mounted on top of a layer of sand,  $\delta = 100$  mm. All metal elements are painted 2 times with ПФ-115 GOST 6465 76 on a layer of priming ГФ-021 GOST 25219-87. In all places of the pipeline crossing through construction to install steel casing-pipe.

e. To ensure uniform distribution of the water on the tote sectors/networks of water supply from the village will be built a water tower/metal reservoir, such as "Turn Rozhnov," volume  $V = 50$  m<sup>3</sup> and height  $h = 15$  m, per the project type: 901-5-32C with resistance to seismicity equal to 5.0 degrees. Foundation under the tower is provided from armo-concrete monolith, mark (M200), B20. The Foundation of the Tower will be built per the project documentation "Acvaprodar" sheet No. 2016-10-2-AC-7. From the outside, all construction areas of the Tower will be pruned and painted with paint (БТ-177) in 2 layers, or 2 layers of oil paint on a layer of a high oil containing iron-lead. Interior surfaces will be pruned and painted with 2 coats of paint containing lead-iron.

f. Execution of building works at aqueduct must be made according to SniP 3.05.04 -85 and respecting the requirements of labour in accordance with SniP III-4-80 "technique in construction".

g. Regional planning around the water tower and water probes include the following works: construction of earthworks, fence-fixing sanitary zone, with broken stone paving crossings in the territory around the probe and the Tower, the sowing of turf.

h: Fence wire mesh No. 50 of galvanised wire BP  $\text{Ø}3\text{mm}$ , 50x50mm cell type "Rabița", mounted on metal masts,  $d = 50$  mm, with welded  $\text{Ø}50\text{x}6\text{mm}$ , embed in concrete monolith bubbles B 7.5 (M100)-400x400cm, with a depth of 700 mm, with a pitch of 2.50 m, height  $h = 1.6$  m fence. The gates and the pillars of the fence will be some spins in metal with  $d = 100$  mm. All items will be made of metal and painted in green.

6. The construction of the sewerage system connecting to the wastewater treatment plant and the objects of social purpose Budăi village

a. The new sewer system will be built according to the documentation of project No. 052/2017, which consist of an network of external sewerage pipes of PVC Ø160 SDR41, SN4/-200 mm, on a bed of sand with thickness  $h = 100$  mm. All the work of construction is carried out in accordance with the requirements of en SNIP 3.05.04-85 and SN 478-80. Sewerage pipes along the track layout after project relief according to the documentation. In places with hard, dry soil, it calls for the preparation of a bed of sand with thickness of 100 mm.

b. *Manhole*: prefabricated concrete rings, KИ10-3, KИ10-9, with Ø1000mm, special concrete of cement, which is ensured by the ratio water/cement equal to 0.55, GOST 22266-76, cast iron block, cover all exterior surfaces will be waterproofed with a coating of mastic application  $\delta = 5$  mm. from the bottom of Plate will be mounted on top of a layer of sand,  $\delta = 100$  mm. steel painted entirety two times with paint ПФ -115 GOST 6465 76 on a layer of priming ГФ - 021 GOST 25219 87. Tubes: in passages through walls, from Ø273mm steel pipe.

c. *The purge*: waste waters from the objects of social and residential homes will be discharged by the sewage purification station towards type-Module "Biotal-10" (designed with two blocks, one of which will be built in perspective with the development of the village sewer system), with a capacity of wastewater treatment of 10m<sup>3</sup>/day, each block.

d. *Sanitary zone*: will be enclosed with a wire mesh fence from barbed wire zinc BP Ø2mm diameter, 8 2 row-row horizontal and diagonal for strength, mounted on pillars made of metal, with diameter of Cap Ø50x6mm section Ø 50 mm and weld, embed in concrete monolith bubbles B 7.5 (M100)-400x400cm with a depth of 700 mm, with a pitch of 2.50 m, the height of the fence will be 1.6 m. All items will be made of metal and painted with paints on metal green in the Hall

## **6. Marking equipment**

All equipment must be marked with the original features included from the manufacturer, which must include at least the year of production, the main technical parameters and type/ID of the equipment. Fitted cables will be marked at the beginning and the end. All textual markings required for operation of the system, must be in Romanian and Russian language

## **4.3 Documentation regarding operation and maintenance of the system of waste water treatment**

The contractor must ensure 2 copies of detailed documentation regarding operation and maintenance of the system of the waste water treatment plants installed. Manuals must be complete to describe all equipment installed, include a maintenance plan. All documentation

must be in Romanian language and/or Russian. Documentation regarding operation and maintenance must be submitted to UNDP for coordination and approval at least 15 days before commissioning.

To ensure maximum understanding of technical processes related to the functioning of the system of waste water treatment, the contractor will develop a set of operational procedures (SOP) standards comprehensible to users. These SOP will be distributed to each participant.

#### **6.10 Reception at the completion of work**

After construction works has been completed, the equipment provided in the contract should be installed and tested properly, staff trained and implementation documents submitted in order to proceed with the completion of work procedures.

All costs related to the organization of the tests of waste water treatment plants installed and staff training shall be supported by the contractor.

#### **6.10 Warranty period**

The warranty period for the works and the equipment installed shall start with from the day of reception of the works and shall be 12 months for the equipment and 36 months and for works.