



European Union Water Initiative **plus**  
for Eastern Partnership



## 4th meeting of NPD Coordination Council Chisinau, 15 June, 2018

**Problems with creating and using the system of water supplies for small populated areas in Moldova with consumption of up to 200m<sup>3</sup> per day and other developments for new normative documents**

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## PREREQUISITES FOR CREATING A NEW STANDARD:

- OBLIGATIONS TO ACHIEVE SUSTAINABLE DEVELOPMENT GOALS - SDG 6.1 AND 6.2
- CHANGE IN CONDITIONS FOR CREATING WATER SUPPLY SYSTEMS IN CONNECTION WITH NEW WATER USE CONDITIONS, TECHNOLOGIES, MATERIALS AND EQUIPMENT
- OBSOLESCENCE OF EXISTING STANDARDS FOR THE CREATION OF WS SYSTEMS IN CONNECTION WITH THE TRANSITION TO MARKET RELATIONS
- THE NEED FOR A SHORT TIME TO ENSURE THE MAXIMUM COVERAGE OF THE ENTIRE POPULATION BY THE COMFORTABLE USE OF QUALITY DRINKING WATER WITH MINIMAL COSTS FOR THE CREATION OF SYSTEMS AND THEIR OPERATION
- THE NEED TO TAKE INTO ACCOUNT THE REAL NEEDS OF THE POPULATION LIVING IN RURAL AREAS, FINANCIAL OPPORTUNITIES AND DEVELOPMENT PROSPECTS.

The increase in the costs of establishing and maintaining water supply and sanitation systems led to an increase in service fees

- Increased payments for water entailed cost control and reduced water consumption.
- tariffs for water for the population in Moldova range from 0.6 to 1.8 \$ / m<sup>3</sup> and for sewerage to 1 \$/ m<sup>3</sup>. (AMAS, 2015)
- Almost every year there is an increase in tariffs for water services due to rising energy prices and devaluation of the national currency.

EXPERT FORECAST: SETTLEMENTS WITH A POPULATION OF UP TO 2000-3000 PEOPLE  
WILL FURTHER INHIBIT THEIR DEVELOPMENT

CAUSES:

- THE PREDICTED FLOW OF VILLAGERS INTO THE CITY IS INEVITABLE. IN THE VILLAGES OF MOLDOVA LIVE ABOUT 60% OF THE POPULATION, WHILE IN THE EUROPEAN UNION THIS PERCENTAGE IS ON AVERAGE 25%.

- OPTIMIZATION CARRIED OUT IN SCHOOLS AND MEDICAL INSTITUTIONS IN SMALL VILLAGES WILL PUSH YOUNG PEOPLE TO MOVE TO CITY
- EU DIRECTIVES POINT TO THE MANDATORY PROVISION OF CENTRALIZED WSS SYSTEMS TO SETTLEMENTS WITH A POPULATION OF MORE THAN 2000 PEOPLE. ASSUMING FOR OTHER SMALL VILLAGES OTHER METHODS OF IMPROVING WATER SERVICES

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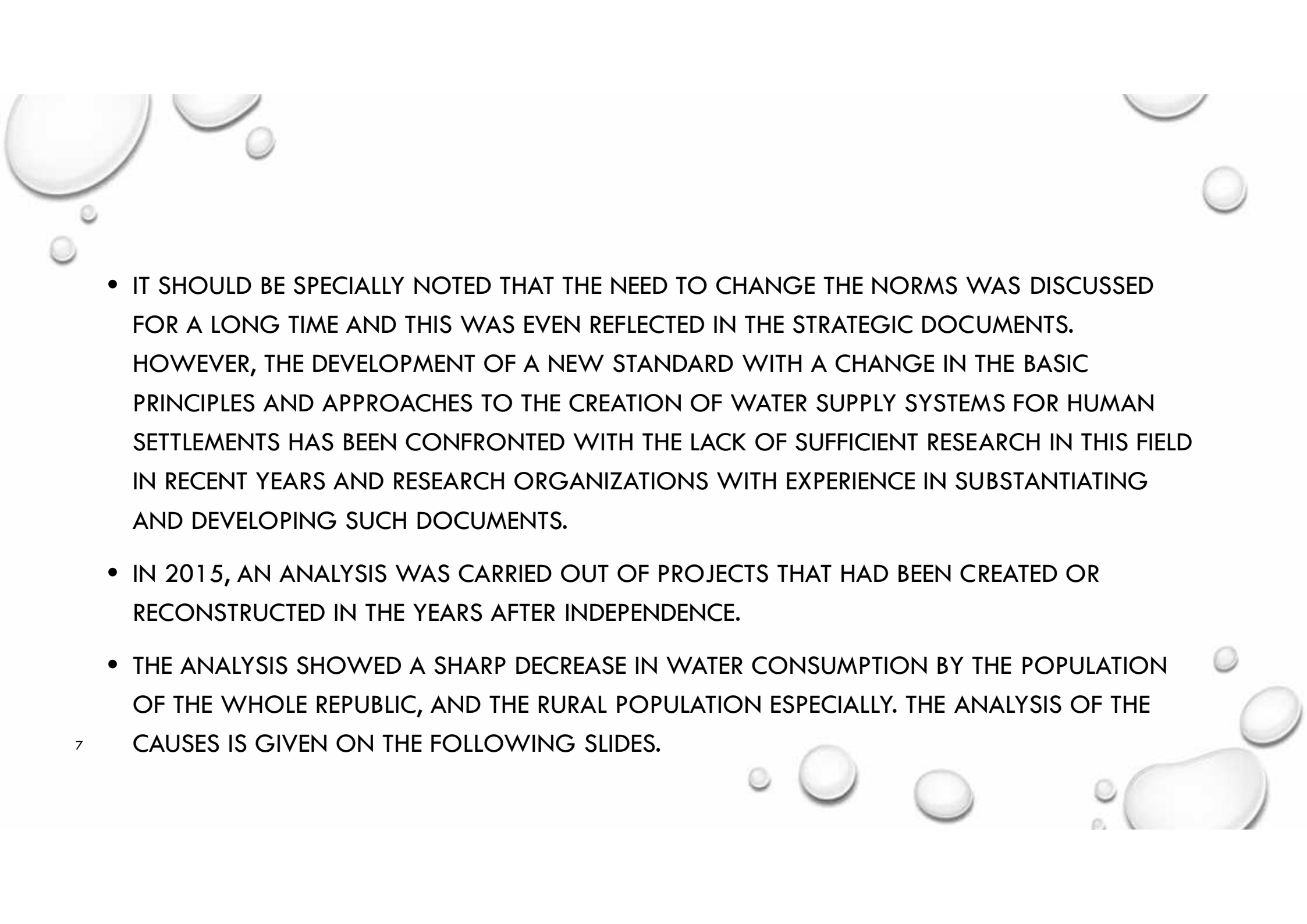


- THE NEED TO DIVIDE APPROACHES TO HUMAN SETTLEMENTS WITH DIFFERENT POPULATIONS.
- IDENTIFY SMALL SETTLEMENTS AND THE CONDITIONS FOR CREATING SYSTEMS FOR THEM
- TO BRING THE ESTIMATED PRODUCTIVITY OF SYSTEMS TO THE REAL NEEDS OF THE POPULATION IN WATER, TAKING INTO ACCOUNT THE IMPACT ON THE ENVIRONMENT AND THE CAPACITY OF THE POPULATION AND THE STATE
- REDUCE THE COST OF CREATING WATER SUPPLY SYSTEMS BY: A) SIMPLIFYING THE DISTRIBUTION SYSTEM; B) REDUCING COSTS AIMED AT ENSURING FIRE SAFETY STANDARDS; C) TAKING INTO ACCOUNT THE CHANGES THAT HAVE OCCURRED IN THE SANITARY ENGINEERING AND WATER SUPPLY TECHNOLOGIES; D) TAKING INTO ACCOUNT THE TRADITIONS OF THE POPULATION AND LOCAL SOURCES LOCATED ON THE TERRITORY OF SETTLEMENTS.
- TO LOWER THE REAL COST OF WATER SERVICES IN ORDER TO OBTAIN TARIFFS THAT ALLOW THE POPULATION TO USE THE REQUIRED AMOUNT OF WATER.



## THE NEED FOR CHANGES IN NORMS AND APPROACHES

- IT WAS DECIDED TO MAKE CHANGES IN THE NORMS FOR WATER SUPPLY AND SANITATION, BRINGING THEM CLOSER TO THE REAL ONES
- TO CONSIDER, JUSTIFY AND AGREE ON THE POSSIBILITY OF SOLVING THE QUESTIONS OF THE COST EFFECTIVENESS OF FIRE EXTINGUISHING, TO MINIMIZE THE COSTS OF THEIR SOLUTION. TO STUDY THE POSSIBILITY OF ATTRACTING INSURANCE ORGANIZATIONS TO THIS ISSUE.
- DETERMINE THE LEVEL OF SERVICE, THE TYPE AND VOLUME OF WSS FOR SETTLEMENTS OF DIFFERENT SIZES AND, FIRST OF ALL, SMALL SETTLEMENTS WITH A POPULATION OF UP TO 2000 PEOPLE.

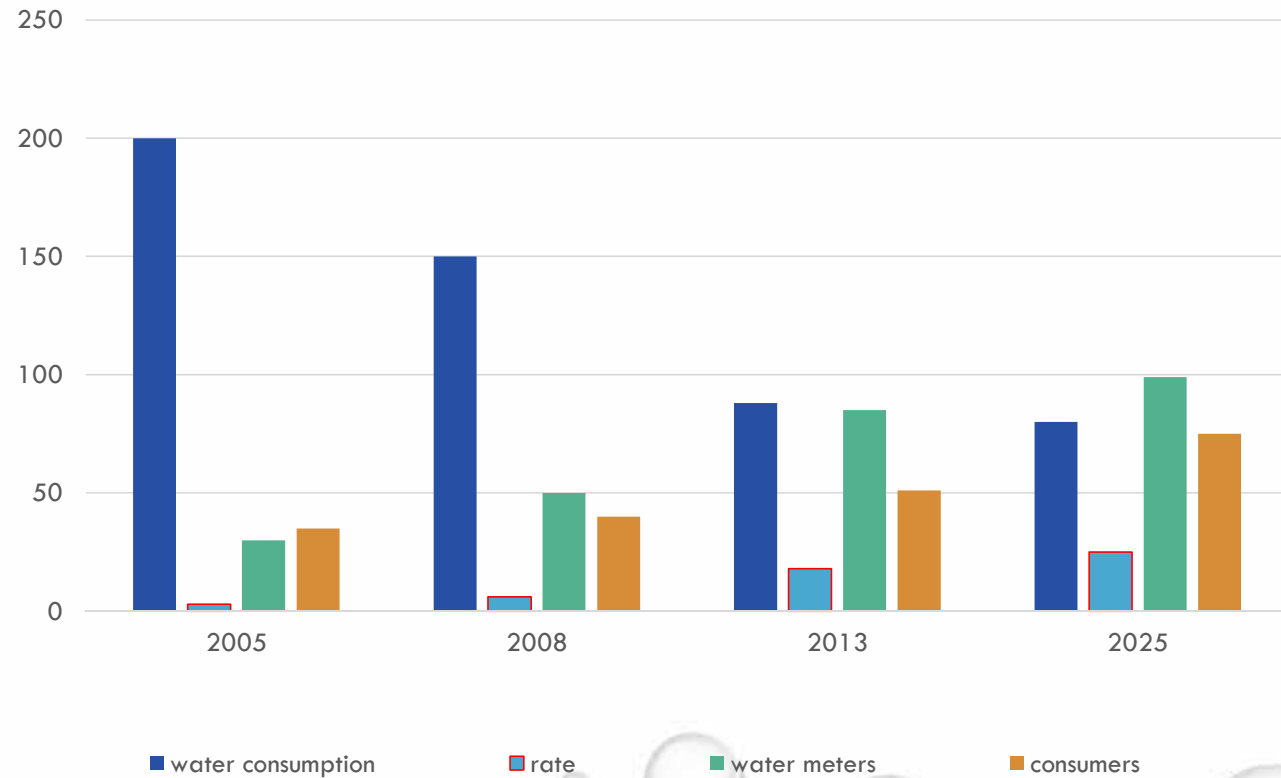
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- IT SHOULD BE SPECIALLY NOTED THAT THE NEED TO CHANGE THE NORMS WAS DISCUSSED FOR A LONG TIME AND THIS WAS EVEN REFLECTED IN THE STRATEGIC DOCUMENTS. HOWEVER, THE DEVELOPMENT OF A NEW STANDARD WITH A CHANGE IN THE BASIC PRINCIPLES AND APPROACHES TO THE CREATION OF WATER SUPPLY SYSTEMS FOR HUMAN SETTLEMENTS HAS BEEN CONFRONTED WITH THE LACK OF SUFFICIENT RESEARCH IN THIS FIELD IN RECENT YEARS AND RESEARCH ORGANIZATIONS WITH EXPERIENCE IN SUBSTANTIATING AND DEVELOPING SUCH DOCUMENTS.
  - IN 2015, AN ANALYSIS WAS CARRIED OUT OF PROJECTS THAT HAD BEEN CREATED OR RECONSTRUCTED IN THE YEARS AFTER INDEPENDENCE.
  - THE ANALYSIS SHOWED A SHARP DECREASE IN WATER CONSUMPTION BY THE POPULATION OF THE WHOLE REPUBLIC, AND THE RURAL POPULATION ESPECIALLY. THE ANALYSIS OF THE CAUSES IS GIVEN ON THE FOLLOWING SLIDES.

**DECREASE IN WATER CONSUMPTION  
WITH THE GROWTH OF THE ACCOUNTING  
LEVEL AND THE GROWTH OF TARIFFS**

INCREASE IN THE LEVEL OF SERVICE AND  
COVERAGE AREAS

**THE GROWTH OF TARIFFS WITH A  
DECREASE IN WATER CONSUMPTION, AN  
INCREASE IN THE COST OF  
CONSTRUCTION AND OPERATION**

Dependency: consumption - tariff-water meters - number of consumers





## ESTIMATED DEMAND AND ACTUAL WATER CONSUMPTION

### ESTIMATED DEMAND FOR WATER IN THE NON-SANITATION POPULATION ACCORDING TO THE CURRENT STANDARDS

- **CALCULATED** (SNIP 2.04.02-84) **REDUCED** SPECIFIC WATER CONSUMPTION FOR THE POPULATION WITHOUT SEWERAGE (AT A RATE OF WATER CONSUMPTION OF 50 LITERS \* PERSON / DAY IS APPROXIMATELY 125-140 LITERS \* PERSON / DAY
- - IF THERE IS A PART OF THE SEWER POPULATION IN THE VILLAGE, THE **INDICATOR EXCEEDS 250 L \* PERSON / DAY**

### THE ACTUAL WATER CONSUMPTION BY THE POPULATION IN THE CITIES OF MOLDOVA IN 2013

- THE ACTUAL RESULTED SPECIFIC WATER **CONSUMPTION** BY THE POPULATION OF CITIES EVEN IN MOLDOVA WAS **87.8 LITERS \* PERSON / DAY**
- **WITHOUT TAKING INTO ACCOUNT CHISINAU - 41 LITERS \* PEOPLE (AMAK, 2013)**
- FOR CHISINAU, THIS FIGURE IS **133 LITERS \* PERSON / DAY, AND TAKING INTO ACCOUNT INDUSTRY – 160.**

## DESIGN PRODUCTIVITY AND ACTUAL IMPLEMENTATION

### DESIGN PERFORMANCE OF SYSTEMS ACCORDING TO THE CURRENT STANDARDS

- WATER SUPPLY IN HINCESTI
- ESTIMATED POPULATION BY 2015 - 20,000 PEOPLE
- SYSTEM POWER IN MAX. SUT. - 4,000M<sup>3</sup>
- POPULATION WITHOUT SANITATION 40%
- SPECIFIC WATER CONSUMPTION
- 200L / PERSON \* DAY
- THE ESTIMATED COST OF WATER IS 7 LITERS / M<sup>3</sup>

### ФАКТИЧЕСКАЯ РЕАЛИЗАЦИЯ ВОДЫ ИЗ СИСТЕМ ПОСЛЕ СТРОИТЕЛЬСТВА

- WATER SUPPLY IN HINCESTI
- ACTUAL NUMBER FOR 2014 (STATISTICS) - 15,200 PEOPLE.
- THE ACTUAL REALIZATION OF WATER IN MAX. - 1,000M<sup>3</sup>
- POPULATION WITHOUT SANITATION 50%
- ACTUAL SPECIFIC CONSUMPTION OF WATER - 66 LITERS / PERSON \* DAY.
- THE WATER TARIFF FOR THE RECONSTRUCTED SYSTEM IS 18.4 LEY / M<sup>3</sup>

# PROCESS

- LOCAL EXPERTS IN FEBRUARY 2015 PREPARED A DRAFT REGULATORY DOCUMENT THAT TOOK INTO ACCOUNT A NUMBER OF NECESSARY CHANGES REGARDING THE CURRENT STANDARDS OF THE SOVIET PERIOD. HOWEVER, HE DID NOT RECEIVE THE RIGHT TO APPROVE - THE MINISTRY OF CONSTRUCTION WAS ASKED TO REVISE THE ENTIRE “SNIP” FOR WATER SUPPLY. IN ADDITION, THE EXISTING BUREAUCRATIC MECHANISM AND THE LACK OF SPECIALISTS CAPABLE OF ASSESSING THE ADMISSIBILITY OF THE PROPOSED APPROACHES, ALSO PLAYED A ROLE AND THE DRAFT DOCUMENT HUNG IN THE AIR.
- AT THE SAME TIME, THE NEED FOR PROPOSED CHANGES WAS STRONGLY KNOCKING ON THE DOOR - DONORS INVESTING IN WATER SUPPLY SYSTEMS STRICTLY DEMANDED CHANGES, A SHARP INCREASE IN TARIFFS IN VILLAGES AND A DECREASE IN WATER CONSUMPTION IN NEW SYSTEMS TO 10! LITRE PER DAY PER PERSON RETURNED THE GOVERNMENT TO ADDRESS THIS ISSUE.
- IN 2016, THE OECD HAS JOINED THE SOLUTION OF THIS ISSUE, WHILE TAKING INTO ACCOUNT THE POSSIBILITY OF IMPLEMENTING ANALOGUES OF THE STANDARD THROUGHOUT THE CIS COUNTRIES. WITHIN THE FRAMEWORK OF AN INDIVIDUAL EXPERT PROJECT, THE STANDARD WAS FINALIZED, THE CORRESPONDING SUBSTANTIATIONS FOR THE AMENDED ARTICLES WERE PREPARED, APPROVALS WERE MADE WITH THE INTERESTED ORGANIZATIONS, PUBLIC HEARINGS WERE HELD AND A FORM OF INTRODUCING THE PROPOSED NORM WAS INTRODUCED AS MANDATORY FOR EXECUTION THROUGH THE ORDER OF THE MINISTRY OF ECONOMY AND DEVELOPMENT, WHICH INCLUDES THE DIVISION OF STANDARDS IN CONSTRUCTION. AT THE BEGINNING OF THIS YEAR, THE DOCUMENT WAS ADOPTED FOR EXECUTION ON A TEMPORARY BASIS. CURRENTLY, A CODE OF PRACTICE IS BEING PREPARED ON THE PROPOSED CHANGES AND, AFTER ITS COMPLETION, THE DOCUMENT WILL TAKE A PERMANENT FORM.
- SIMILAR WORK IS BEING COMPLETED IN THE KYRGYZ REPUBLIC.

# THE MAIN CHANGES IN THE NEW STANDARD

- ADJUSTING WATER USE STANDARDS IN LINE WITH ACTUAL AND PROSPECTIVE CONSUMPTION
  - **DECREASE IN THE DAILY NON-UNIFORMITY COEFFICIENT TO THE ACTUAL VALUES - HENCE THE DECREASE IN THE DESIGN CAPACITY OF THE SYSTEM**
  - **MANDATORY AUTOMATION AND DISPATCHING OF THE MAIN PROCESSES FOR WATER RAISING AND SUPPLYING, THE MAIN TECHNOLOGICAL PROCESSES FOR THE POSSIBILITY OF ATTRACTING QUALIFIED OPERATORS WORKING REMOTELY.**
  - THE WATER SUPPLY FROM THE SOURCE OF WATER SUPPLY TO THE SETTLEMENT **IN ONE THREAD**. IN THIS CASE, THE DEVICE OF THE TANK FOR DAILY MANUALLY REGULATION IN THE VILLAGE.
  - RINGING OF THE NETWORK ONLY IN THE CENTRAL PART OF THE VILLAGE WITH THE MAXIMUM DENSITY OF INFRASTRUCTURE, WHERE THE OBJECTS OF SOCIAL AND CULTURAL LIFE ARE LOCATED. **DEAD ENDS OF NETS ARE ALLOWED** IN THE REST OF THE VILLAGE
  - **MANDATORY INSTALLATION OF INDIVIDUAL WATER METERS**
  - THE CONSTRUCTION OF FIRE HYDRANTS ONLY ON THE RING SECTION OF THE NETWORK, WITH A SHARP REDUCTION IN THEIR NUMBER - **AN ADDITIONAL REDUCTION IN THE MAIN EXPENSES**
  - THE USE OF MORE ECONOMICAL PLUMBING APPLIANCES (TAP-OFF CRANES WITH A GRID, LOW-FLOW TOILET BOWLS AND
- <sup>12</sup> SHOWER HEADS, ETC.)



## THE NEED FOR CHANGES IN NORMS AND APPROACHES

- THE WORD "NORM" IMPLIES BOTH NECESSITY AND SUFFICIENCY
- WE SHOULD ALWAYS REMEMBER THAT THE EFFICIENCY AND PROFITABILITY OF ANY WATER SYSTEM STARTS WITH A REAL CONSUMPTION RATE
- SUCH AN APPROACH WILL ALLOW FOR THE PROPER ALLOCATION AND MUCH MORE EFFECTIVE USE OF FUNDS FOR ACHIEVING THE OBJECTIVES AND MEETING THE REQUIREMENTS OF INTERNATIONAL WATER DIRECTIVES.

THANK YOU FOR ATTENTION!

