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REPORT ON

ANALYSE OF WATER SECTOR NEEDS FOR LLL COURSES IN WB

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University of Nis

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v.03	14.06.2019	Document completed	UPKM in cooperation with all WB partners

Contents

List of abbreviations

AUTh	Aristotle University of Thessaloniki
BOKU	University of Natural Resources and Life Sciences, Vienna
CBHE	Capacity Building in Higher Education
EACEA	Education, Audiovisual and Culture Executive Agency
HEI	Higher Education Institution
LLL	Life Long Learning
NMBU	Norwegian University of Life Sciences, Norway
PWMC VV	Public Water Management Company ''Vode Vojvodine''
SWARM	Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders
UACEG	University of Architecture, Civil Engineering and Geodesy, Bulgaria
UNI	University of Nis, Serbia
UL	University of Lisbon, Portugal
UoM	University of Montenegro
UNIRIFCE	University of Rijeka, Croatia
UNMO	Dzemal Bijedic University of Mostar
UNS	University of Novi Sad
UNSA	University of Sarajevo
UPKM	University of Pristina in Kosovska Mitrovica
TCASU	Technical College of Applied Sciences Urosevac with temporary seat in Leposavic
WRM	Water Resources Management

1 Introduction

The analysis of water sector needs in WB partner countries is done with the aim to identify knowledge and organizational gaps and develop effective training programmes for professionals in water sector. Within the WP3 the list of existing LLL courses for professionals in water sector in EU partner countries is created in order to help WB partners to develop efficiently trainings for professionals in water sector. The results of analysis will serve to decide which specific areas in the field of water resources management will be covered by training programmes, considering specificity of each WB partner country. The selected teachers from WB HEIs will prepare programmes of the trainings that will be applicable on national level and will conduct three-day training with participation of interested professionals in water sector, representatives of governmental bodies and other stakeholders (30 participants per training).

The WP3 is subdivided into three activities:

* A3.1 Introduction with LLL courses for professionals in water sector in EU,

* A3.2 Analyze of water sector needs for LLL courses in WB,

* A3.3 Development of trainings' content and corresponding educational material.

Conducted survey of water sector needs in WB will tailor to meet the needs of each WB partner country regarding water-dependent jobs. UPKM in cooperation with other partners prepared questionnaire, conducted survey and processed data on 150 subjects per WB partner HEI.

PWMCVV and associated partners in the field of WRM took participation also in forming questionnaire and their delivery to their employees.

2 Questionnaire

UPKM, as the Coordinator of WP3, prepared Questionnaire, which was agreed with all the partners in the project. After that, UPKM produced online questionnaire (http://swarm-survey.pr.ac.rs). The content of the questionnaire is as follows:

First group of questions: General details

University
Gender
Age
Level of education
Employment sector
The institution where you are employed
Position
Number of years of Experience
Comment

Second group of questions: Job Responsibilities as regards to Water Management in the organization

- In your present position, how much time do you devote for carrying work related to Water Resources Management?

  from 0 to 20
  from 20 to 40
  from 40 to 60
  from 60 to 80
  from 80 to 100

- In your present position, what are your responsibilities for Water Resources Management? You may tick more than one.

  Planning & Scheduling
  Budgeting, Costing and other Financial Aspects
  Field Supervision
  Coordination & Meetings
  Technical & Engineering Aspects
  Training & Capacity Building
  Communication
  Staff Management, Control
  Public Interaction and Complaint Redress
  Legal aspects
  Enhancing Community Participation
  Any Other

Third group of questions: Awareness, Knowledge to Water Resources Management Policy

- How aware are you of the instruments for Water Resources Management?

— EU Water Law, Policy or Strategic Plan

Fully aware
Partially aware
Not aware

— National Water Law, Policy or Strategic Plan

Fully aware
Partially aware
Not aware

— Regional Water Law, Policy or Strategic Plan

Fully aware
Partially aware
Not aware

- Are you aware of the other national instruments that may incorporate Water Resources Management?

— Integrated national policy/strategy/plan for land and water resources management

Fully aware
Partially aware
Not aware

— Poverty Reduction Strategy (PRS) with water resources management component

Fully aware
Partially aware
Not aware

— National Strategy for Sustainable Development

Fully aware
Partially aware
Not aware

— National Development Plan with water resources management component

Fully aware
Partially aware
Not aware

— National Environmental Action Plan water resources management component

Fully aware
Partially aware
Not aware

— National climate change adaptation policy/strategy/plan with water resources management component

Fully aware
Partially aware
Not aware

— National Agricultural Plan with water resources management component

Fully aware
Partially aware
Not aware

— National energy policy/strategy/plan with water resources management component

Fully aware
Partially aware
Not aware

— National desertification policy/strategy/plan with water resources management component

Fully aware
Partially aware
Not aware

— National wetland policy/strategy/plan with water resources management component

Fully aware
Partially aware
Not aware

— National biodiversity policy/strategy/plan with water resources management component

Fully aware
Partially aware
Not aware

- According to you, what is the level of compliance in your organization as regards to various actions described in the table below? Please tick, as you feel appropriate.

— Groundwater management program

Very good
Good
Fair
Poor

— Surface management program

Very good
Good

Fair
Poor

— Linked ground and surface water management program

Very good
Good
Fair
Poor

— Programs for efficient allocation of water resources among competing uses

Very good
Good
Fair
Poor

— Land/natural resources management programs that include water resources management components

Very good
Good
Fair
Poor

— Programs for allocating water resources that include environmental considerations

Very good
Good
Fair
Poor

— Demand management measures to improve water use efficiency in all sectors

Very good
Good
Fair
Poor

— Program for re-use or recycling of water

Very good
Good
Fair
Poor

— Programs to evaluate environmental impacts of water projects

Very good
Good
Fair
Poor

— Programs to address water-related disasters (e.g. floods and droughts)

Very good
Good
Fair
Poor

Fourth group of questions: Training Need

- Please read each of the abilities carefully and rate yourself and your colleagues on the same on the basis of five point rating scale. (Five is the highest and one is lowest)

Understanding WRM procedures
Technical & Engineering aspects
Institutional aspects
Supervision and Coordination
Computer Applications
Budgeting & Costing for WRM
Contracting mechanisms
Training & Capacity Building
Communication Skills
Integrated water resources management

- Please indicate the areas of training needs for you and colleagues in your category to increase the competencies in managing WM services. You may tick more than one.

National, Sub-national and International Water Resources Policy
Project Management
IT tools in managing water
Stakeholders Engagement and Community Development
Water Supply Management
Wastewater treatment technology and effluent management
Groundwater management
River restoration
Monitoring, Enforcement and Accountability
Water Sustainability and Development
Any Other, you wish to add

- Have you or any one of your colleagues received training on the subject of WM? If yes, please provide details.

Name & Designation of Staff/s
Name of Institution/s
Subject/Topic/s
Duration
Period

- Please suggest the duration of training for your group. Please tick appropriate.

½ day
One day

Two to three days
Five days
Five to fifteen days

- What is your preferred mode of training? You may tick more than one.

Class Room Teaching
Workshop, Seminar
Interactive Discussion
Explore trips
Reference material
Hands on Training

- Are you willing to go to a certified training institution for receiving training on the identified areas of improvements for WM?

Yes
No
Maybe

Fifth group of questions: Technical Training

- Indicate your preferable technical training. You may tick more than one.

Water resources infrastructure
Irrigation
Energy/hydropower
Groundwater (e.g. boreholes, pumps and treatment)
Flood management
Water supply (domestic and industrial)
Wastewater treatment
Desalination of seawater
Rainwater harvesting
Natural systems (e.g. wetlands, floodplains and catchment restoration)
Sustainable Integrated Water Resources Management

3 Survey results

After the questionnaire had been posted on the site (http://swarm-survey.pr.ac.rs) all WB partners prepared their list of public companies and institutions, where the survey is expected to be conducted. The survey of the public companies had been conducted up to 20th May 2019.

Table 1. The number of fulfilled questionnaires

#	University/Project partner (Partner Number)
1136	Total of completed questionnaires
161	University of Nis (P1)
163	University of Novi Sad (P8)
177	University of Sarajevo (P9)
173	Dzemal Bijedic University of Mostar (P10)
151	University of Pristina in Kosovska Mitrovica (P11)
152	Technical College of Applied Sciences Urosevac (P12)
153	University of Montenegro (P13)
6	Public Water Management Company "Vode Vojvodine" (P14)

Survey results are given for every institution separately, and at the end in total.

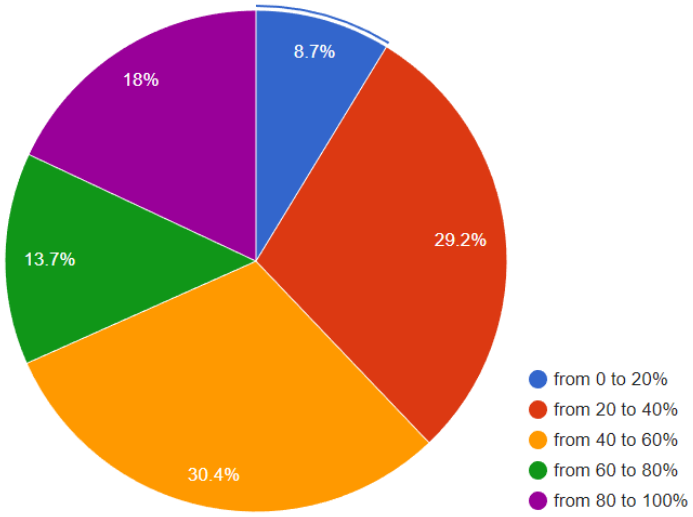
Public Water Management Company "Vode Vojvodine", as a project partner, has obligation that only those who participated in the project fulfill the questionnaire. Their results are part of this Report, but are not commented. The goal of the other WB HEI's partners was to provide at least 150 participants in the survey, which was achieved (see Table 1).

3.1 P1 - University of Niš – UNI

3.1.1 Survey results

Second group of questions: Job Responsibilities as regards to Water Management in the organization

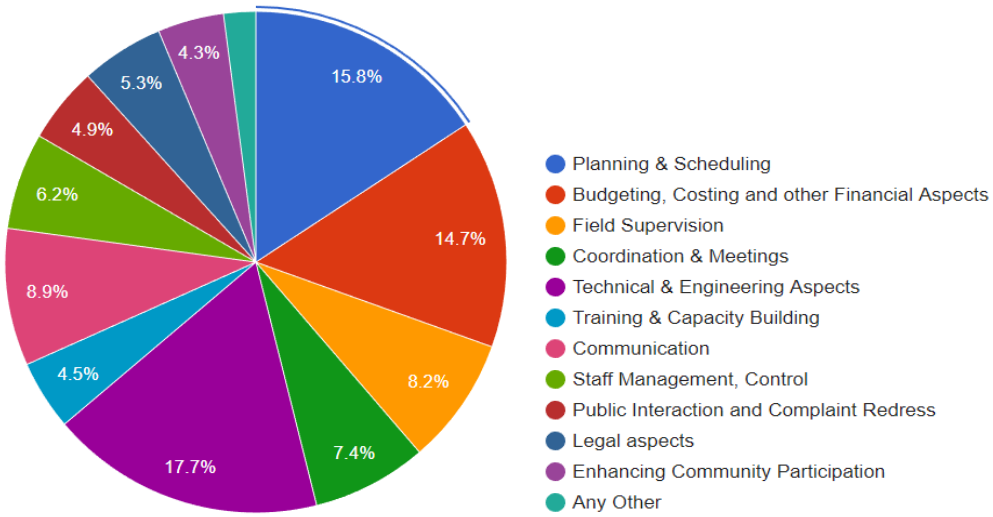
- In your present position, how much time do you devote for carrying work related to Water Resources Management?



The answers on this question show that people, related with water sector, mostly devote from 40 to 60 % of their time for Water Resources Management. According to questionnaire, 18 % of people spend from 80 to 100 % of their time for Water Resources Management. It's worrying that only 31.7 % of people related with water sector devote 60 – 100 % of their time to Water Management, i.e. approximately the same as people who devote from 40 to 60 % (30.4 %) or from 20 to 40 % (29.2 %) of their time to Water Management. It is important to say that 8.7 % of respondents (the smallest percentage of respondents) are not spending or they are spending maximum 20 % of their time with Water Resources Management, at this time.

- In your present position, what are your responsibilities for Water Resources Management? You may tick more than one.

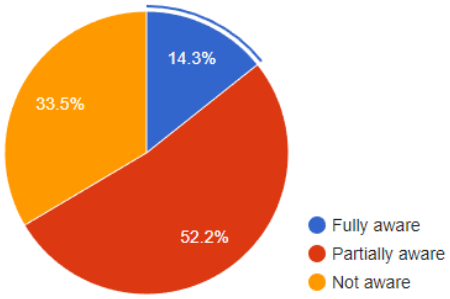
According to results, the greatest number of respondents (17.7 %) has responsibilities related with Technical and Engineering Aspects. Moreover, from total number of respondents 15.8 % and 14.7 % are for the Planning and Scheduling and for Budgeting, Costing and other Financial Aspects, respectively. People related with water sector do not pay enough attention to Enhancing Community Participation in water problems (only 4.3 %).



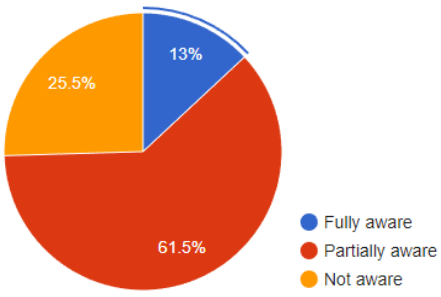
Third group of questions: Awareness, Knowledge to Water Resources Management Policy

- How aware are you of the instruments for Water Resources Management?

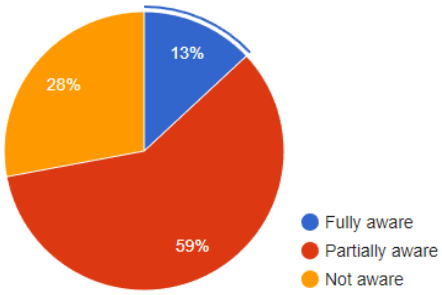
  — EU Water Law, Policy or Strategic Plan



  — National Water Law, Policy or Strategic Plan



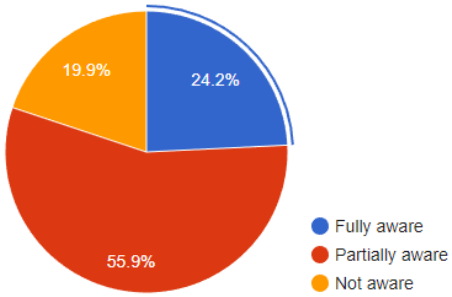
  — Regional Water Law, Policy or Strategic Plan



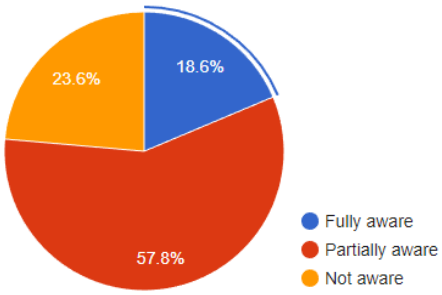
*Employees in water sector are **Partially aware** of instruments for Water Resources Management. There are 52.2 % of people who are **Partially aware** of instruments, such as EU Water Law, Policy and Strategic Water Plans, for Water Resources Management, while Fully aware people are 14.3 %. Results related to national and regional level are approximately the same, i.e. the lowest number of respondents (13 %) is **Fully aware** of the instruments for Water Management, while Partially aware persons are approximately 60 % of total number of the respondents. Percentage of people, related with water sector in Serbia, who are **Not aware** of instruments for Water Management is considerable high.*

- Are you aware of the other national instruments that may incorporate Water Resources Management?

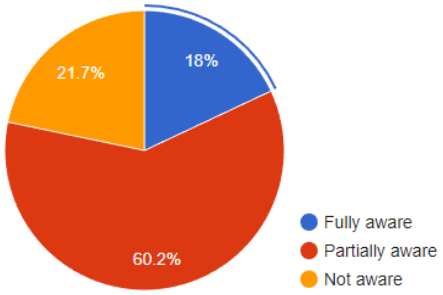
  — Integrated national policy/strategy/plan for land and water resources management



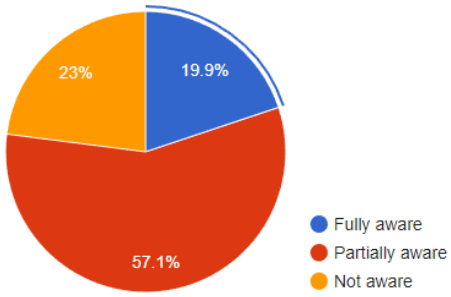
  — Poverty Reduction Strategy (PRS) with water resources management component



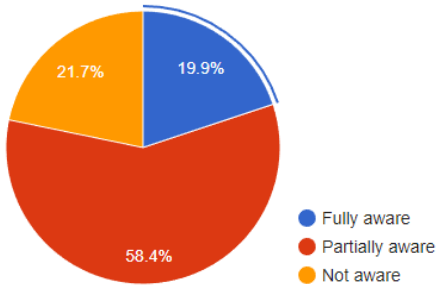
  — National Strategy for Sustainable Development



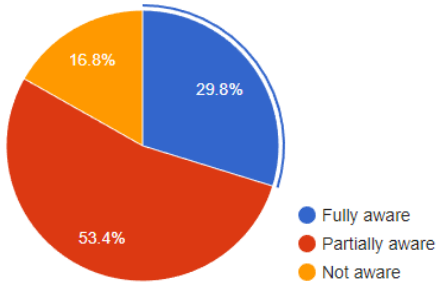
— National Development Plan with water resources management component



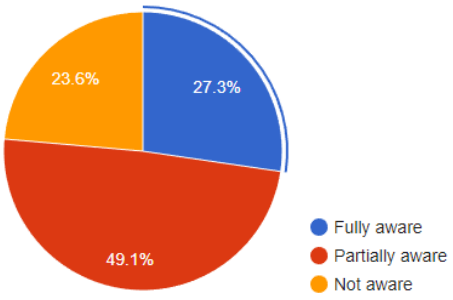
— National Environmental Action Plan water resources management component



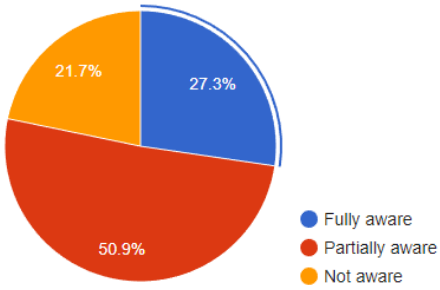
— National climate change adaptation policy/strategy/plan with water resources management component



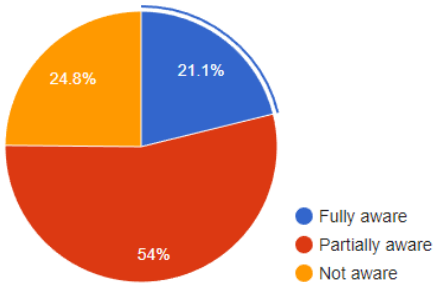
— National Agricultural Plan with water resources management component



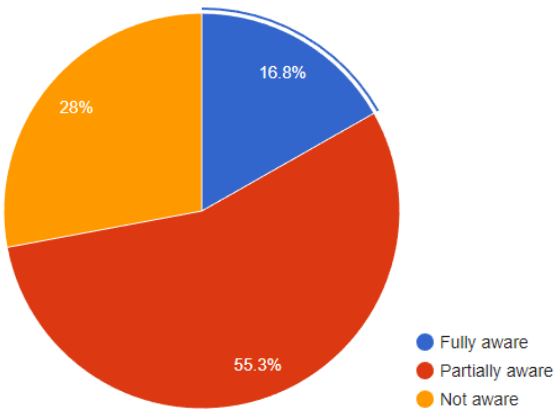
— National energy policy/strategy/plan with water resources management component



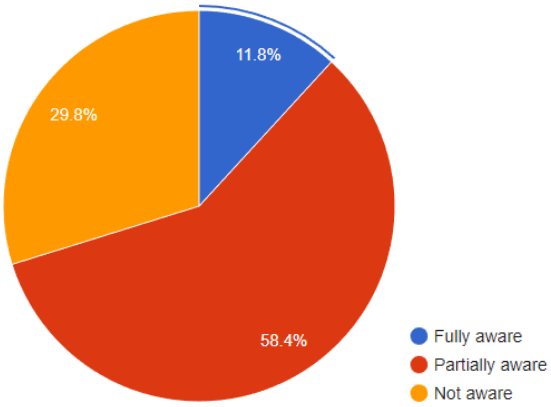
— National desertification policy/strategy/plan with water resources management component



— National wetland policy/strategy/plan with water resources management component



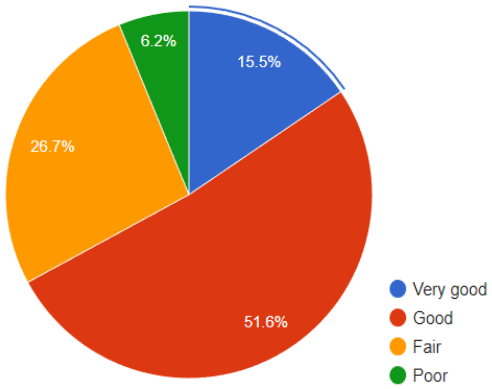
— National biodiversity policy/strategy/plan with water resources management component



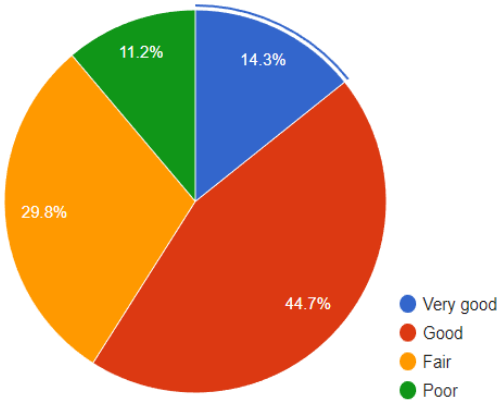
The greatest number of respondents (from 49.1 to 60.2 %) is ***Partially aware*** *of the other national instruments that may incorporate Water Management, while the remaining number of respondents is almost equally divided between* ***Fully aware*** *and* ***Not aware****. Fully aware people are most represented at National climate change adaptation policy/strategy/plan with 29.8 %, while the least people are aware with the National biodiversity policy/strategy/plan.*

- According to you, what is the level of compliance in your organization as regards to various actions described in the table below? Please tick, as you feel appropriate.

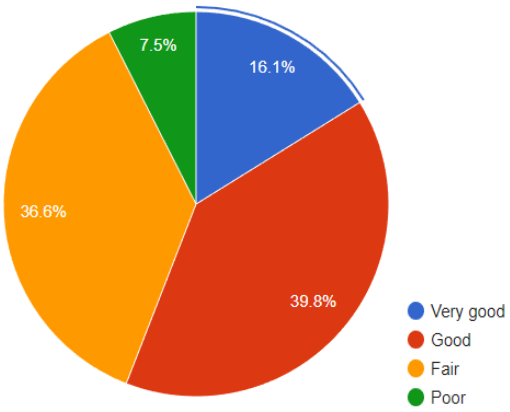
— Groundwater management program



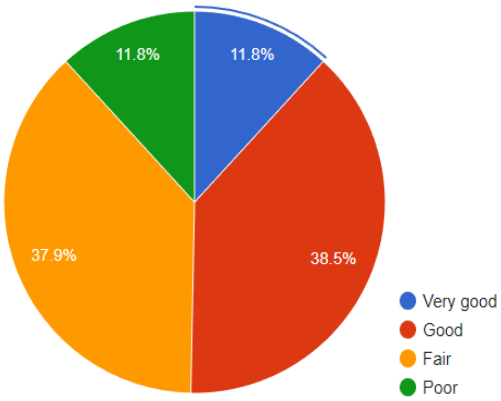
— Surface management program



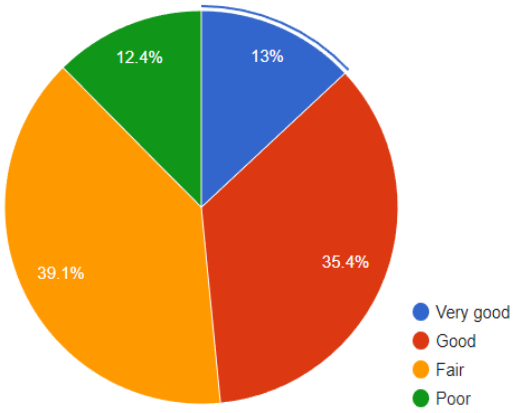
— Linked ground and surface water management program



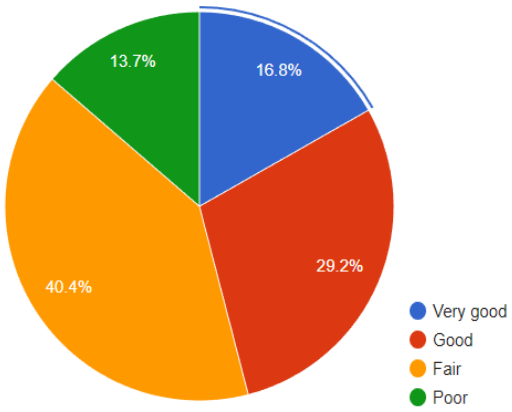
— Programs for efficient allocation of water resources among competing uses



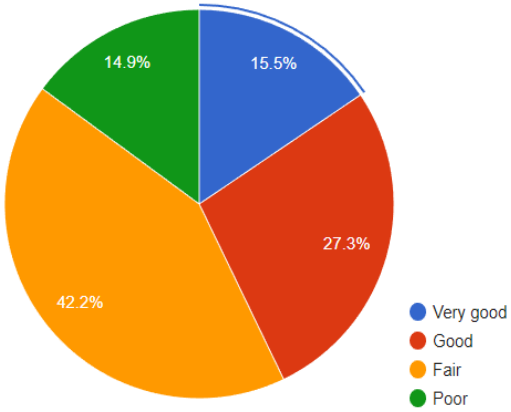
— Land/natural resources management programs that include water resources management components



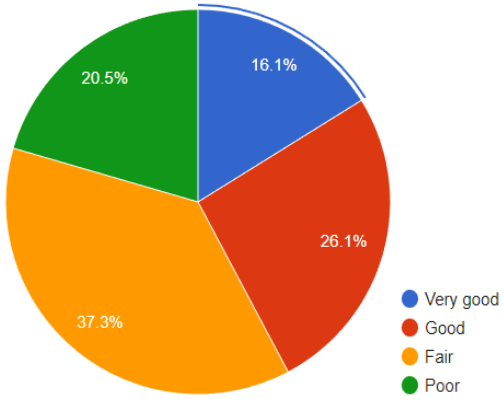
— Programs for allocating water resources that include environmental considerations



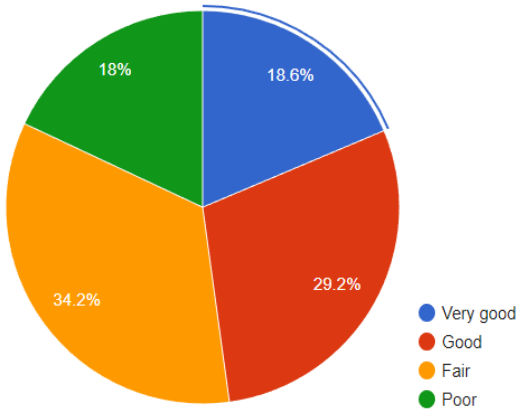
— Demand management measures to improve water use efficiency in all sectors



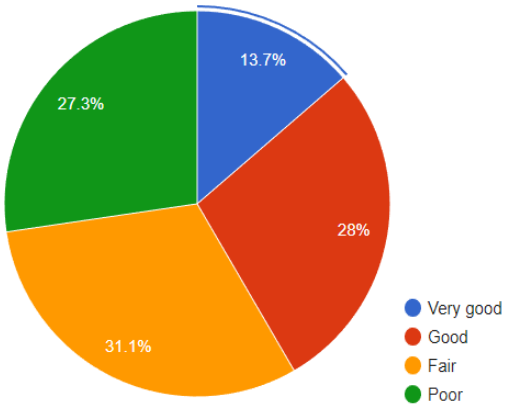
— Program for re-use or recycling of water



— Programs to evaluate environmental impacts of water projects



— Programs to address water-related disasters (e.g. floods and droughts)

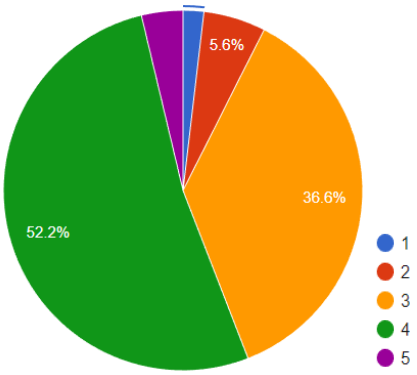


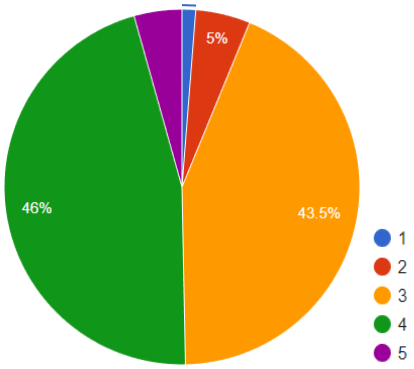
*The level of compliance of respondents with Groundwater management program is **Good**, with 51.6 %, **Fair** with 26.7 %, **Very good** with 15.5 % and **Poor** with 6.2 %. Also, the most respondents think that there is **Good** level of compliance with Surface management program - 44.7 %, with Linked ground and surface water management program - 39.8 % and with Programs for efficient allocation of water resources among competing uses – 38.5 % (results are similar with Fair level – 37.9 %). The survey shows that most respondents have **Fair** level of compliance with Land/natural resources management programs – 39.1 %, with Programs for allocating water resources – 40.4 %, with Demand management measures to improve water use efficiency in all sectors – 42.2 %, with Program for re-use or recycling of water – 37.3 %, with Programs to evaluate environmental impacts of water projects – 34.2 %, with Programs to address water-related disasters – 31.1 %. The results of compliance for Programs to address water-related disasters are approximately the same for the three levels **Fair**, **Good** and **Poor**, i.e. 31.1 %, 28 % and 27.3 % respectively.*

Fourth group of questions: Training Need

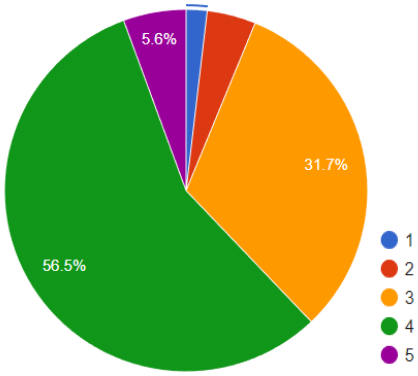
- Please read each of the abilities carefully and rate yourself and your colleagues on the same on the basis of five point rating scale. (Five is the highest and one is lowest)

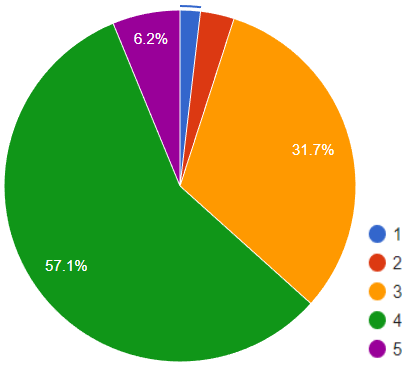
  Understanding WRM procedures (self/colleague)



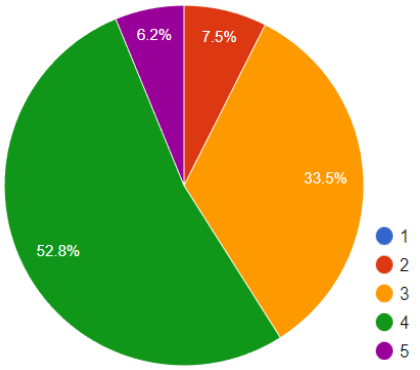


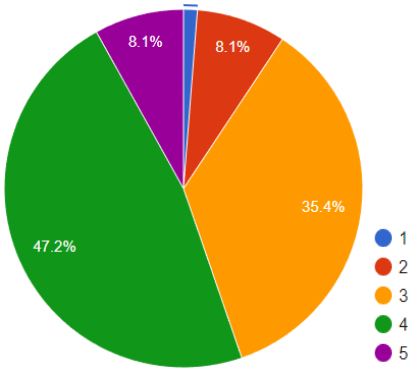
Technical & Engineering aspects (self/colleague)



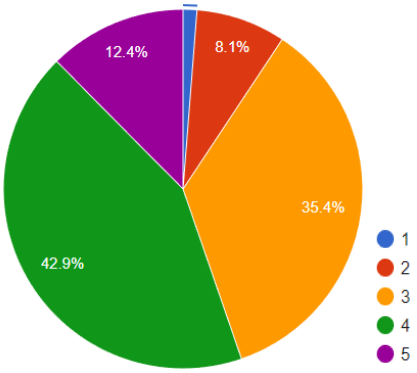


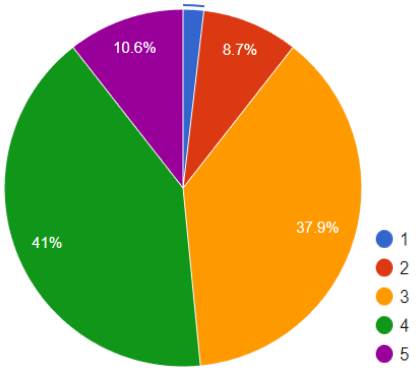
Institutional aspects (self/colleague)



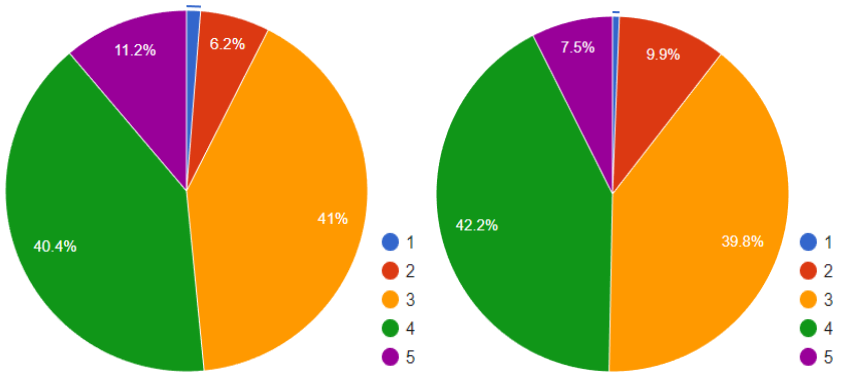


Supervision and Coordination (self/colleague)

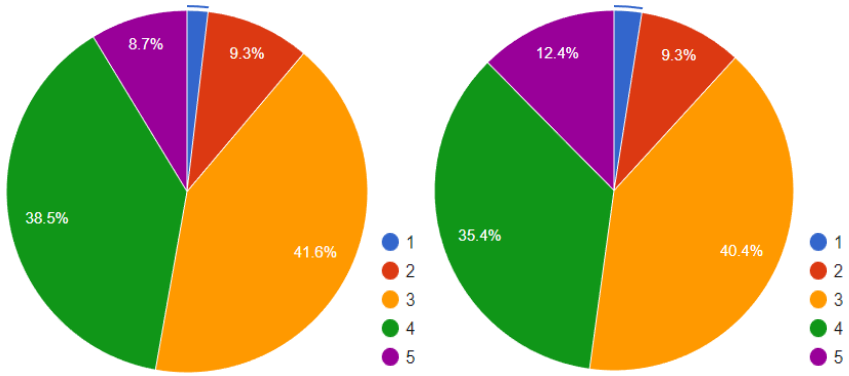




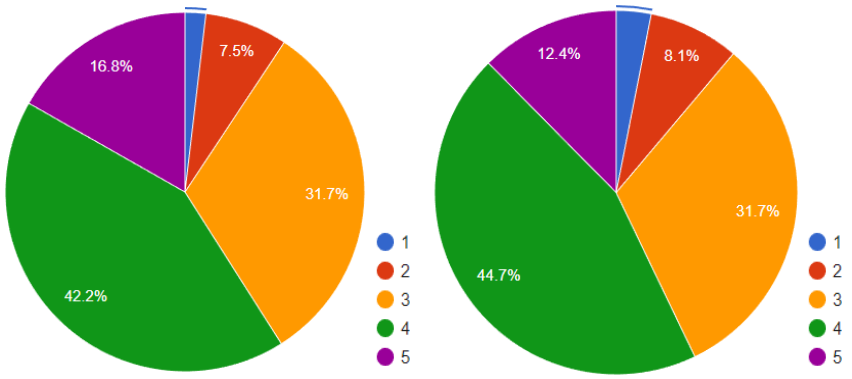
Computer Applications (self/colleague)



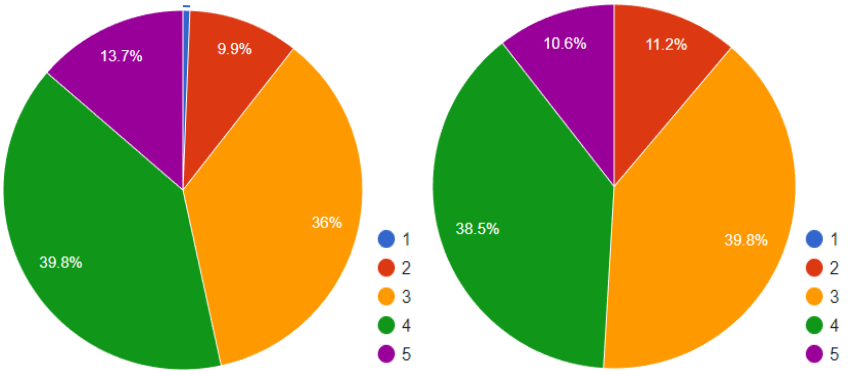
Budgeting & Costing for WRM (self/colleague)



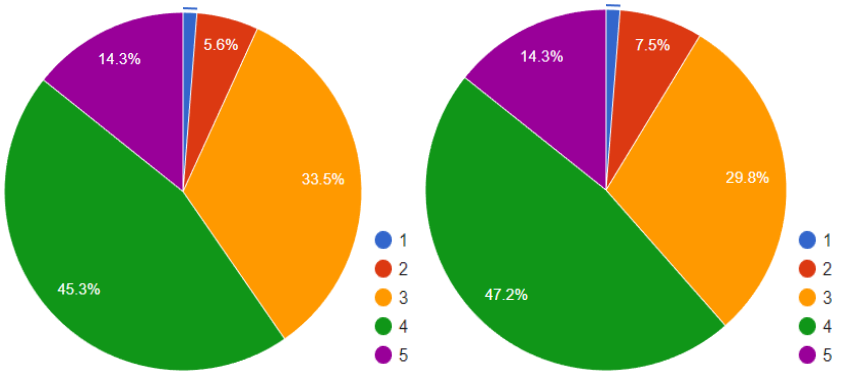
Contracting mechanisms (self/colleague)



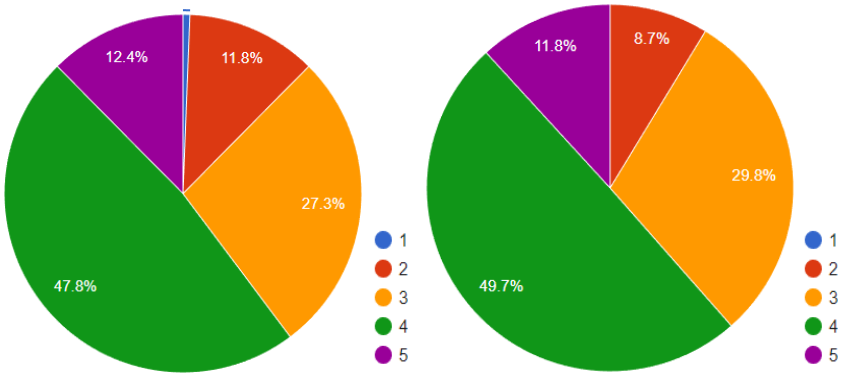
Training & Capacity Building (self/colleague)



Communication Skills (self/colleague)

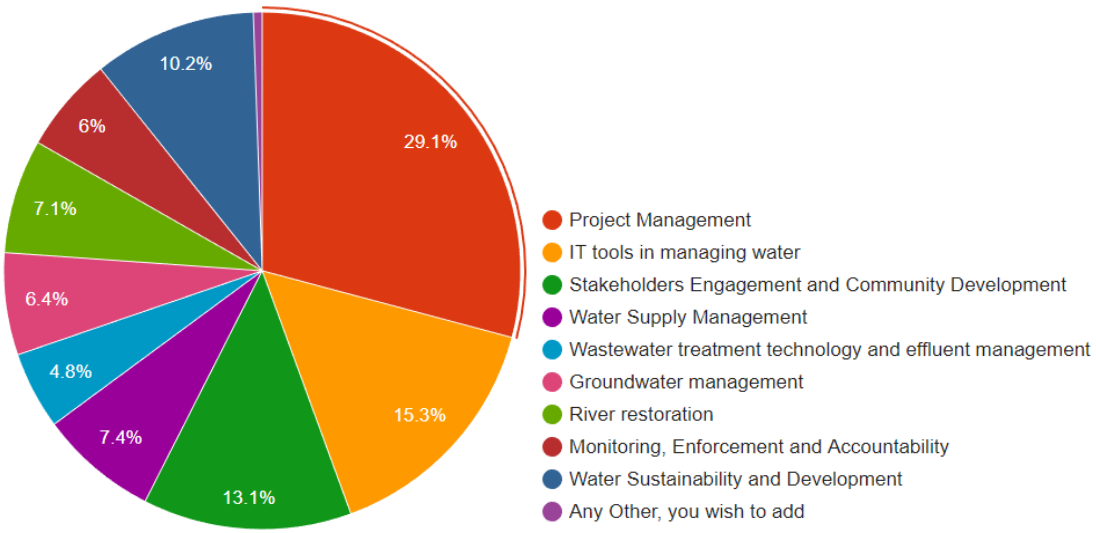


Integrated water resources management (self/colleague)



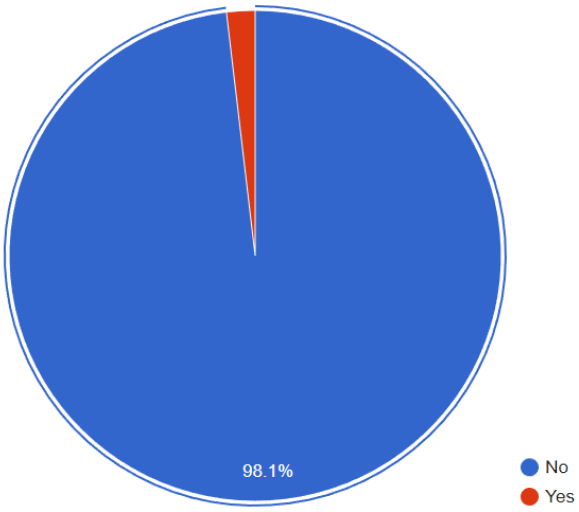
*The self-results and results of surveyed colleagues are almost the same, i.e. with insignificant variations. The main marks, which dominate, are **4** and **3**, while mark **1** has the smallest percentage of respondents (on places it does not exist). The engineers and other technical staff in water sector are very good prepared, on the territory of Central and Eastern Serbia, based on the results of Technical & Engineering aspects where marks **5** and **4** are represented with 62.1 % and 63.3 % for self and colleague respondents, respectively. Also, aspect for Contracting mechanisms shows very good results, only 9.3 % of self and 11.2 % of colleague respondents have marks **1** and **2**.*

- Please indicate the areas of training needs for you and colleagues in your category to increase the competencies in managing WM services. You may tick more than one.



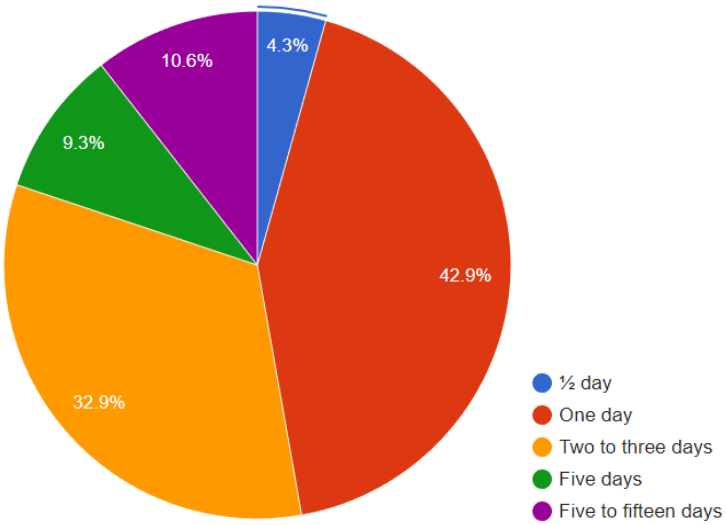
According to the survey, one third of respondents think that ***Project Management*** *should be improved through trainings. What is more,* ***IT tools in managing water*** *and* ***Stakeholders Engagement and Community Development*** *single out with 15.3 % and 13.1 %, respectively. Three mentioned areas cover almost 60 % of respondents' wishes.* ***Monitoring, Enforcement and Accountability*** *represents one of the key areas for a successful Water Management (it gives information and directly coordinate with decisions made by Project Management), and it is concerning that only 6 % of respondents think that this area should be improved. Also, respondents show little interest in improving and advancement training of* ***Water Supply Management*** *(7.4 %).*

- Have you or any one of your colleagues received training on the subject of WM? If yes, please provide details.



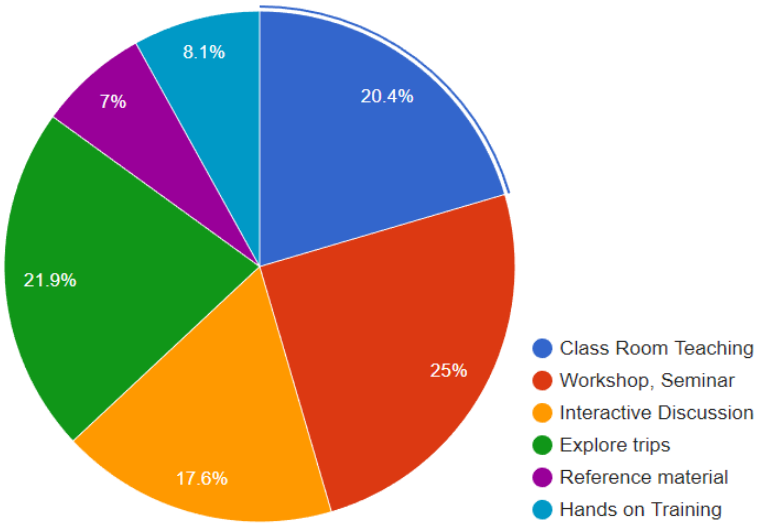
Results showed that almost no one of respondents had any training related with Water Management. This result is very considerable because the quantity and quality of water resources are significantly impaired, mostly by human activities and by climate changes, but it is encouraging the number of people, related with water sector, who showed interest in the survey, as respondents and as experts who participated in survey compilation.

- Please suggest the duration of training for your group. Please tick appropriate.



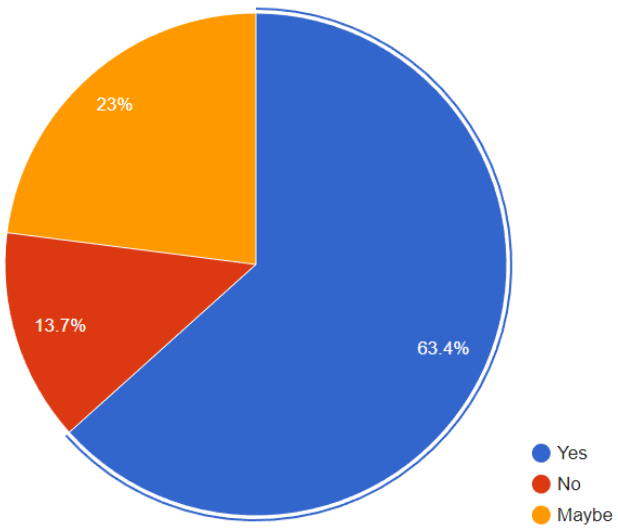
Most of the respondents suggested that training should have duration of ***one day****.* ***Two to three days*** *variant solution is on the second place, based on the 32.9 % of the respondents. For the trainings of* ***half a day****,* ***Five days*** *and* ***Five to fifteen days*** *24.2 % of respondents voted. Furthermore, although there are 25 % of respondents it is not real to have quality training with this proposed duration of trainings.*

- What is your preferred mode of training? You may tick more than one.



The training modes such as ***Workshop, Seminar****;* ***Explore trips****;* ***Classroom Teaching*** *and* ***Interactive Discussion*** *have approximately the same results, i.e. there is relatively the same interest of respondents with 25 %, 21.9 %, 20.4 % and 17.6 %, respectively.* ***Explore trips*** *with 21.9 % of votes shows that respondents are also interested in practical training, and not only in theoretical knowledge.* ***Reference material*** *and* ***Hands on Trainings*** *modes got the smallest number of votes from people from water sector.*

- Are you willing to go to a certified training institution for receiving training on the identified areas of improvements for WM?

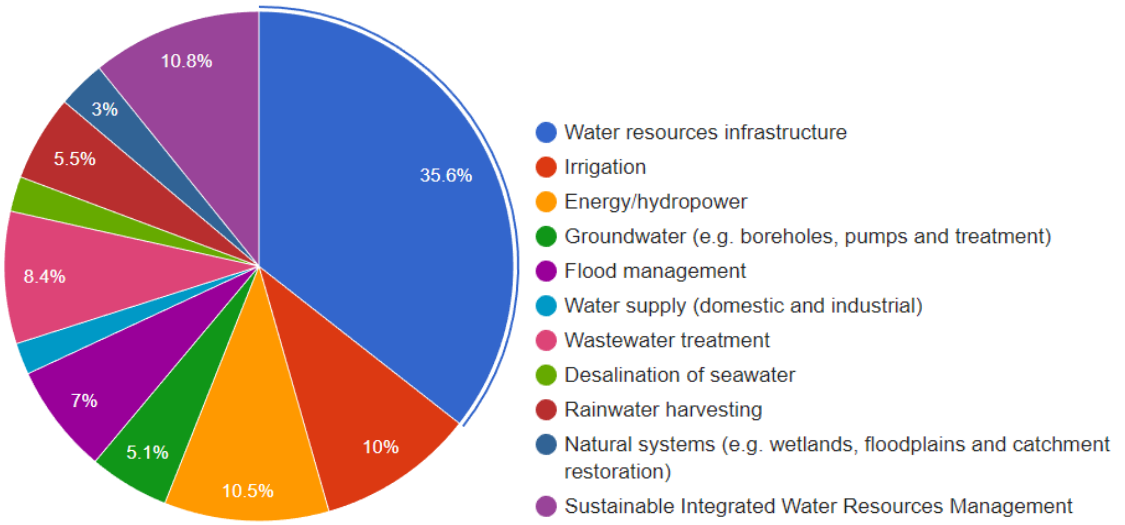


The most of the respondents (63.4 %) are willing to have a certified training. The respondents who want to go into noncertified institutions are 13.7 % of total number of respondents, while 23 % of

*people are undecided (mark as **Maybe**). A small percentage of respondents who do not want to educate themselves through certified institutions, clearly single out the trust of people related with water sector in experts who work in certified institutions.*

Fifth group of questions: Technical Training

- Indicate your preferable technical training. You may tick more than one.



*According to the questionnaire, **Water resources infrastructure** is the technical training having the greatest interest, i.e. for this kind of training 35.6 % of respondents are interested in. **Sustainable Integrated Water Resources Management** is on the second place of respondents' interest, but only 10.8 % of people are interested in it. What is more, **Sustainable Integrated Water Resources Management**, **Energy/hydropower** and **Irrigation** trainings are represented with approximately the same percentage (≈ 10 %). The lowest interest for trainings are for **Desalination of seawater** and for **Water Supply (domestic and industrial)**, there is around 2 % of respondents for each training. There is relatively high level of interests for **Wastewater treatment** training, while for **Rainwater harvesting** relatively low level of interests.*

3.1.2 Survey conclusion

The analysis of water sector needs for LLL courses was conducted on 161 respondents (people in water sector) at University of Nis (territory unit in Serbia, previously defined by University of Nis, University of Novi Sad, University of Pristina in Kosovska Mitrovica and Technical College of Applied Sciences Urosevac). A survey consists of 12 questions divided into 4 groups.

The group of questions called: "Job Responsibilities as regards to Water Management in the organization", indicates that additional efforts have to be made to reduce the percentage people who almost do not devote time (0 – 20 % of time) or devote a little of their time (20 – 40 % of time) to Water Resources Management. These two groups cover almost 40 % of respondents. The respondents responsibilities in Water Management are quite well-target, because three key activities (Planning and Scheduling; Budgeting, Costing and other Financial Aspects and Technical and Engineering Aspects) are represented with almost 50 % of all activities, but it is also important to improve the responsibilities in Enhancing Community Participation, Training and Capacity Building and in Field Supervision.

The third group of questions (Awareness, Knowledge to Water Resources Management Policy) show that more than 50 % of respondents are Partially aware of instruments for Water Management and it is important to say that the results are the same for European, national and regional levels of instruments, so an additional effort should be made to reduce this percentage (50 %) in favor Full aware people. The results of National climate change adaptation policy/strategy/plan, in awareness of national instruments that may incorporate in Water Resources Management, are significant, because 30 % of respondents have been already aware of these plans and their influence to Water Management. According to results of third question in this group, the greatest number of people think that it is Very good level at Programs to evaluate environmental impacts of water projects. This level is not enough because there is great number of respondents with Poor level (18 %) at the same Program.

Results from questions related to training needs show that abilities and competencies from Computer Applications; Budgeting and Costing for WRM; Integrated WRM and Ground water management should be improved. Integrated WRM represents the basic aspect for Water Management, and therefore it must be improved regardless of the survey results. Also, Groundwater management, for which is little interest, must be significantly improved, because the groundwater springs represent the main potential for water supply, with high quality water. The quality and quantity of groundwater are highly threatened at this time.

Almost no one from respondents have had any training from the Water Resources Management. This course, at certified institutions (based on more than 60 % of people – points to the existence of great confidence in official bodies and institutions), represent the good starting point for improvement knowledge of people in water sector. In order to have the high level of training quality and listeners' commitment, the duration of training will most likely be 2 – 3 days, eventually 1 day, and it will be organized as Explore trips and Workshop, Seminar.

The results of fifth group of questions (Technical Training) show that there is a great interest for Water resources infrastructure, which is for a basic training very positive. It is concerning that there are a very small percentage of people who are interesting for Flood management and for Water supply (domestic and industrial), but regardless of the survey results a special attention, through training, will be dedicated to these two areas. These areas represent the areas which are constantly improving, in order to have a better preparation for potential floods (mostly caused by human factor and climate changes) and for a new, domestic and industrial, water demands.

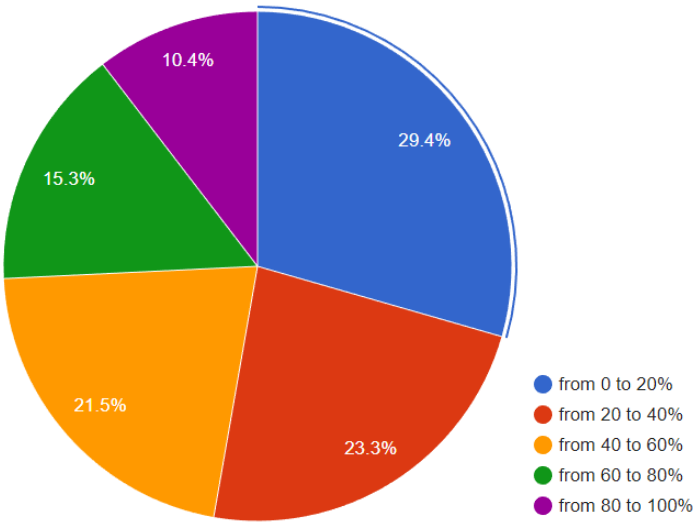
The questionnaire results clearly highlight that there is a great needs for improvement of previously acquired knowledge and for improvement of practical skills at people in water sector. Also, the results and comments showed that there is a great interest of water experts to have quality training, based on suggestions which they sent.

3.2 P8 - University of Novi Sad - UNS

3.2.1 Survey results

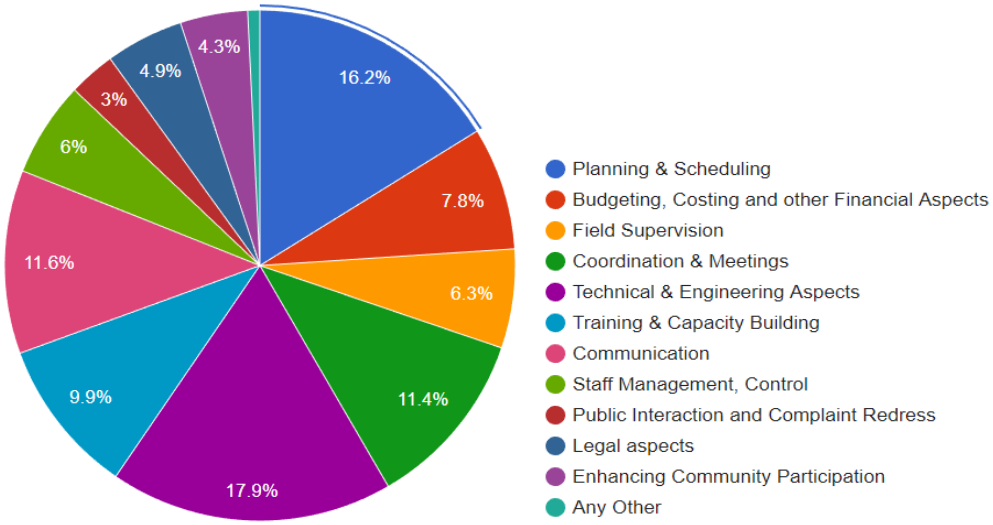
Second group of questions: Job Responsibilities as regards to Water Management in the organization

- In your present position, how much time do you devote for carrying work related to Water Resources Management?



Based on the results of the survey, 10.40% of examinees mostly deal with Water Management activities. About 25.70% examinees are dealing more than half of their job time with Water Resource Management activities and more than half of the examinees do not deal with so much responsibilities related to Water Resource Management activities.

- In your present position, what are your responsibilities for Water Resources Management? You may tick more than one.



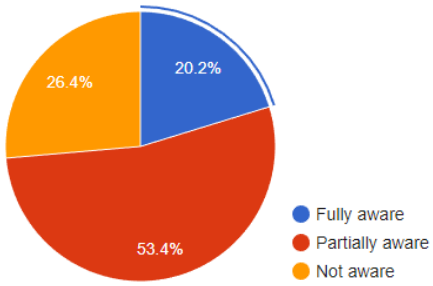
Results of the survey indicate that most of the examinees are dealing with ***technical and engineering aspects*** *(17.90%), following with* ***communication*** *(11.60%) and* ***coordination and meeting***

activities (11.40%). The least activity and responsibilities in the field of Water Resource Management are referring to ***public interactions and complaint redress*** *(3.00%),* ***enhancing community participation*** *(4.30%) and* ***legal aspects*** *(4.90%).*

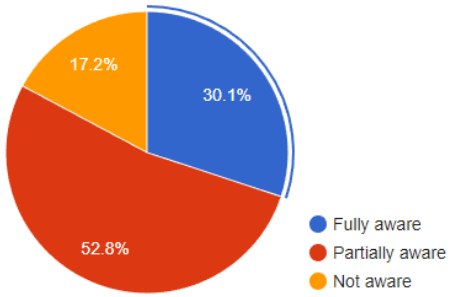
Third group of questions: Awareness, Knowledge to Water Resources Management Policy

- How aware are you of the instruments for Water Resources Management?

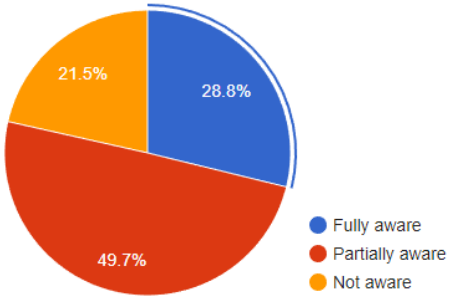
  — EU Water Law, Policy or Strategic Plan



  — National Water Law, Policy or Strategic Plan



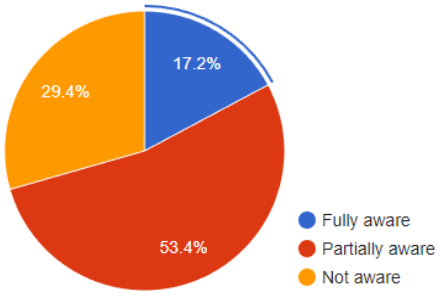
  — Regional Water Law, Policy or Strategic Plan



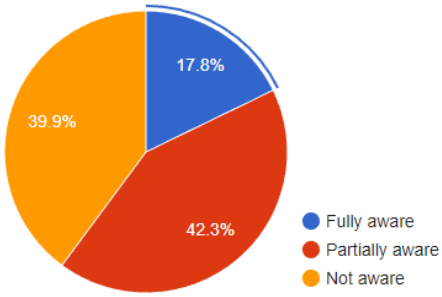
From all investigated examinees 20.02% are ***fully aware*** *with EU Water Law, Policy or Strategic Plan, 30.10% are* ***fully aware*** *with National Water Law, Policy or Strategic Plan and 28.80% are* ***fully aware*** *with Regional Water Law, Policy or Strategic Plan. Also great number of investigated examinees 26.40% are* ***not aware*** *with EU Water Law, Policy or Strategic Plans, then 17.2% of them are* ***not aware*** *with National Water Law, Policy or Strategic Plans and 21.5% with Regional Water Law, Policy or Strategic Plan. Rests of the examinees are* ***partially aware*** *with all of the instruments for Water Resources Management and policy. Percentage of people, related with water sector in Serbia, who are* ***not aware*** *of instruments for Water Management, is considerable high.*

- Are you aware of the other national instruments that may incorporate Water Resources Management?

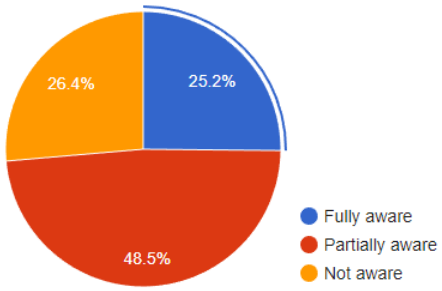
  — Integrated national policy/strategy/plan for land and water resources management



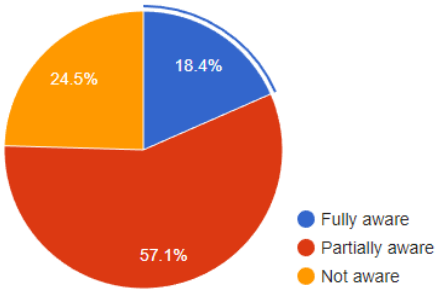
  — Poverty Reduction Strategy (PRS) with water resources management component



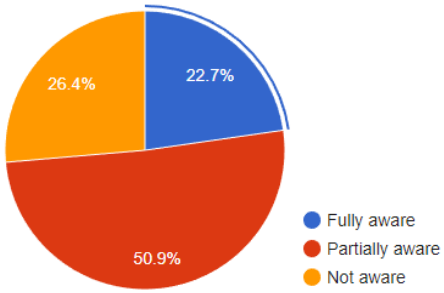
  — National Strategy for Sustainable Development



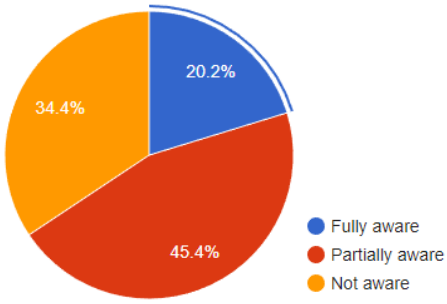
  — National Development Plan with water resources management component



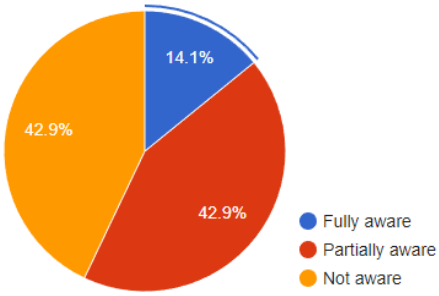
— National Environmental Action Plan water resources management component



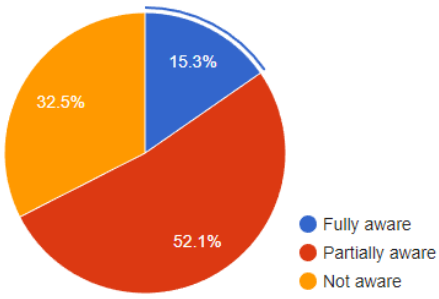
— National climate change adaptation policy/strategy/plan with water resources management component



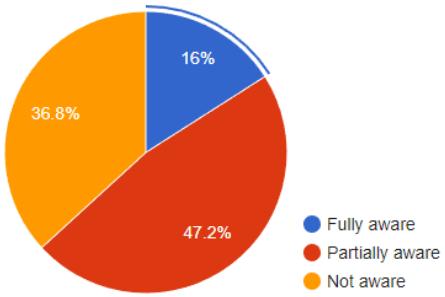
— National Agricultural Plan with water resources management component



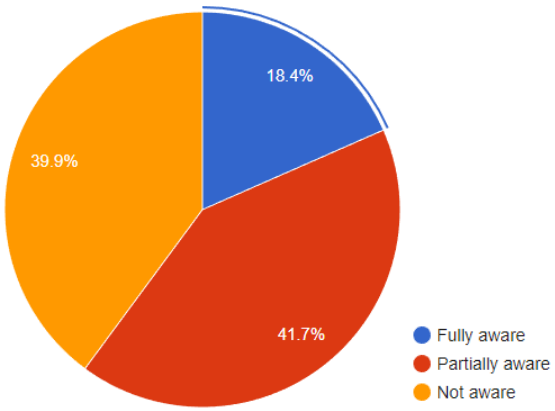
— National energy policy/strategy/plan with water resources management component



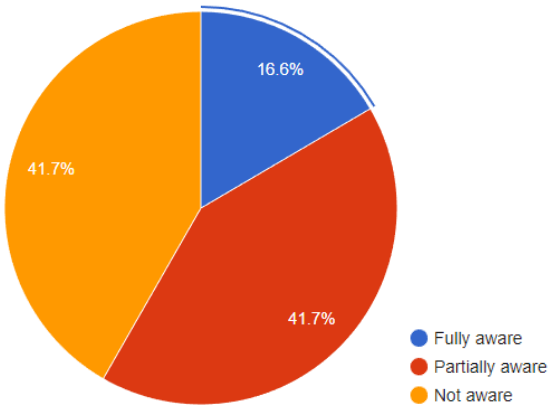
— National desertification policy/strategy/plan with water resources management component



— National wetland policy/strategy/plan with water resources management component



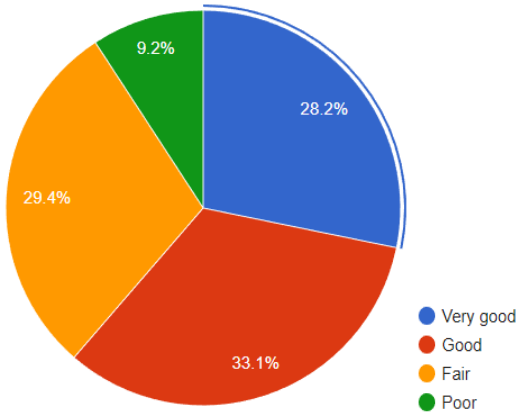
— National biodiversity policy/strategy/plan with water resources management component



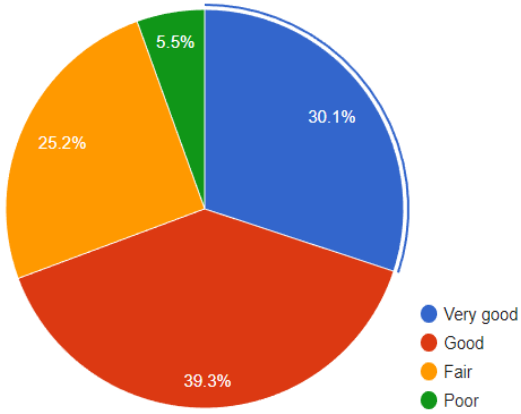
*Between 24.50% and 42.90% of all examinees are **not aware** with other national instruments that may incorporate Water Resources Management activities. Also between 14.10% and 25.20% of all examinees are **fully aware** with all national instruments in the field of Water Resources Management activities. The greatest number of respondents, from 41.70% to 57.21%, is **partially aware** of the other national instruments that may incorporate Water Management.*

- According to you, what is the level of compliance in your organization as regards to various actions described in the table below? Please tick, as you feel appropriate.

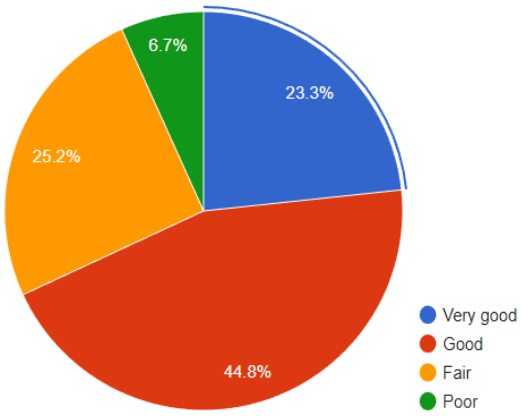
— Groundwater management program



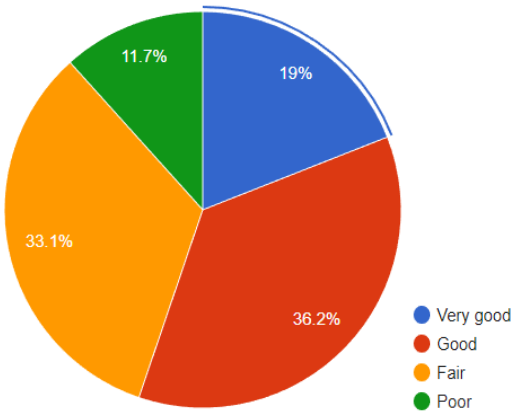
— Surface management program



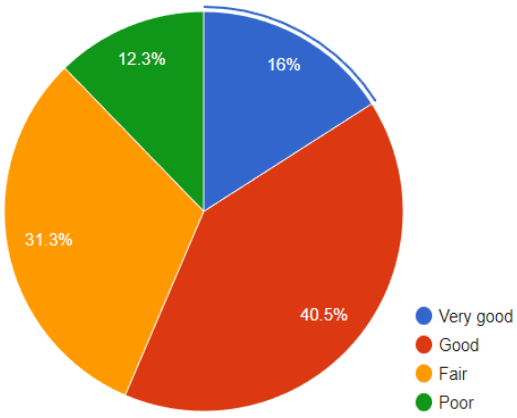
— Linked ground and surface water management program



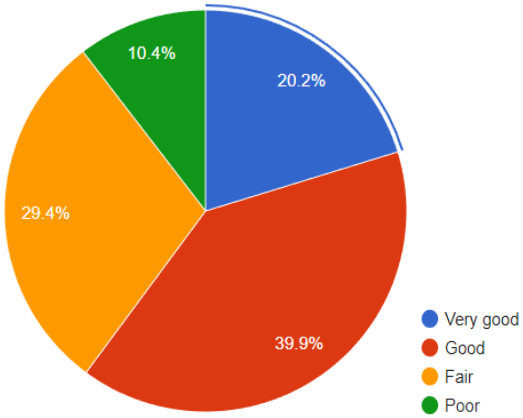
— Programs for efficient allocation of water resources among competing uses



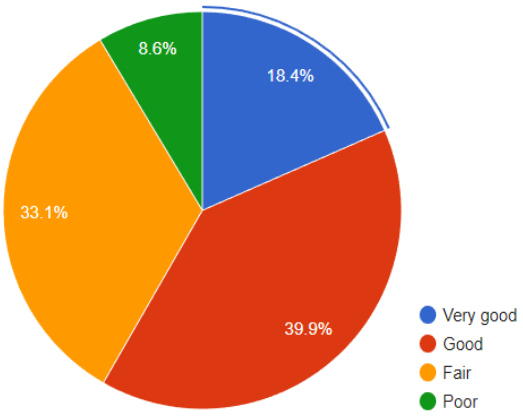
— Land/natural resources management programs that include water resources management components



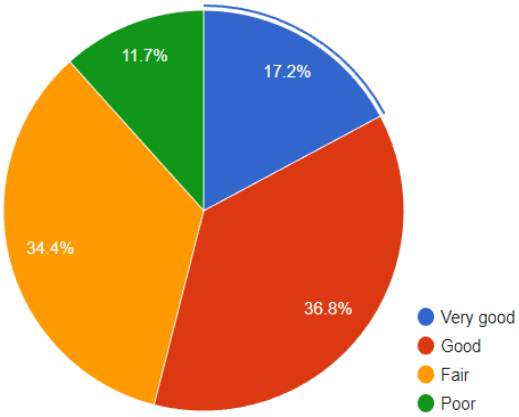
— Programs for allocating water resources that include environmental considerations



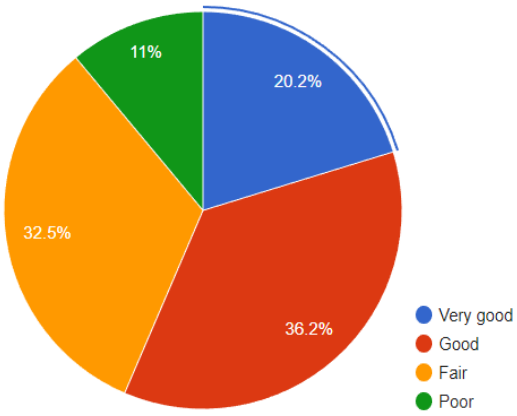
— Demand management measures to improve water use efficiency in all sectors



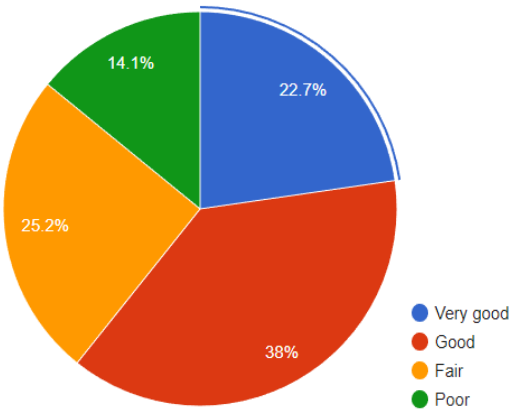
— Program for re-use or recycling of water



— Programs to evaluate environmental impacts of water projects



— Programs to address water-related disasters (e.g. floods and droughts)

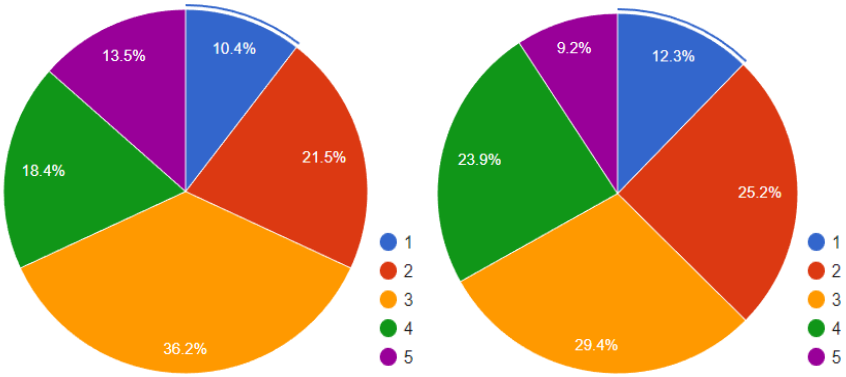


Level of compliance for all investigated institutions is the highest in the field of ***surface water*** *and* ***groundwater management****. Also there is a high level of compliance in the field of* ***linked ground and surface water management program****, water resources that include environmental considerations,* ***efficient allocation of water resources among competing uses, programs which evaluate environmental impacts of water projects*** *and* ***programs to address water-related disasters****. The smallest level of compliance is in the field of* ***land/natural resources management*** *programs that include water resources management components and* ***programs for re-use or recycling of water****.*

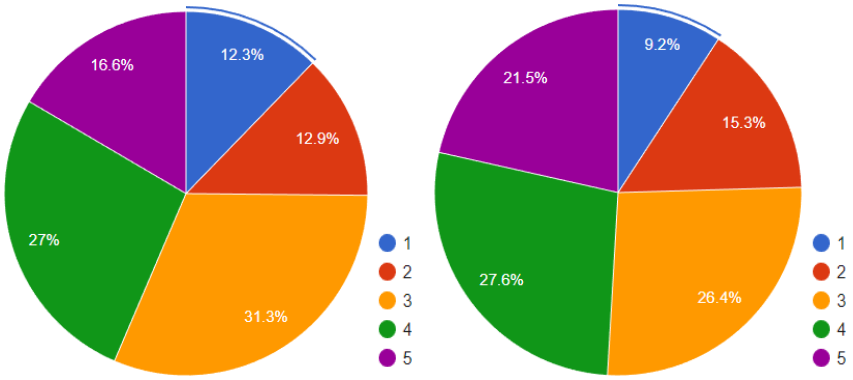
Fourth group of questions: Training Need

- Please read each of the abilities carefully and rate yourself and your colleagues on the same on the basis of five point rating scale. (Five is the highest and one is lowest)

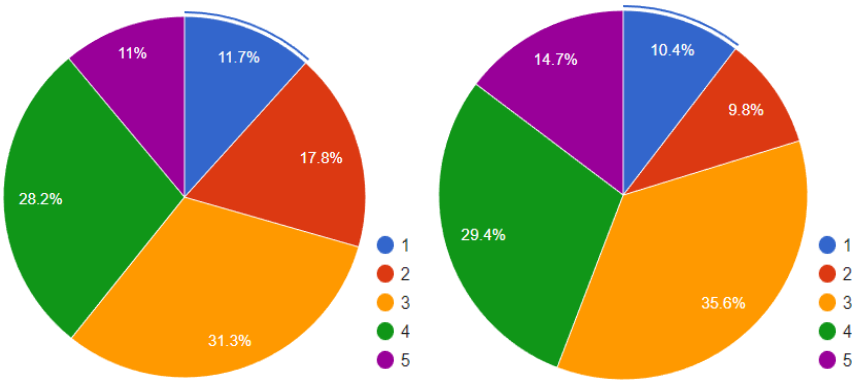
Understanding WRM procedures (self/colleague)



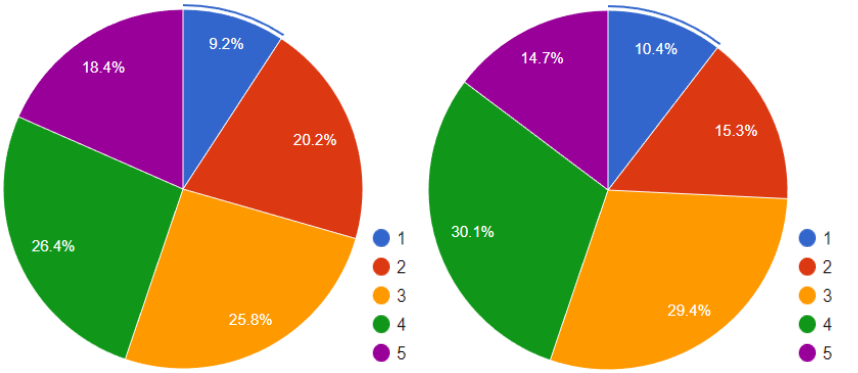
Technical & Engineering aspects (self/colleague)



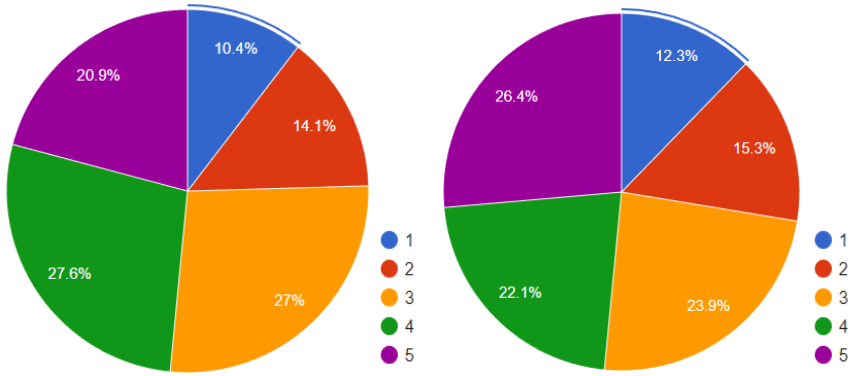
Institutional aspects (self/colleague)



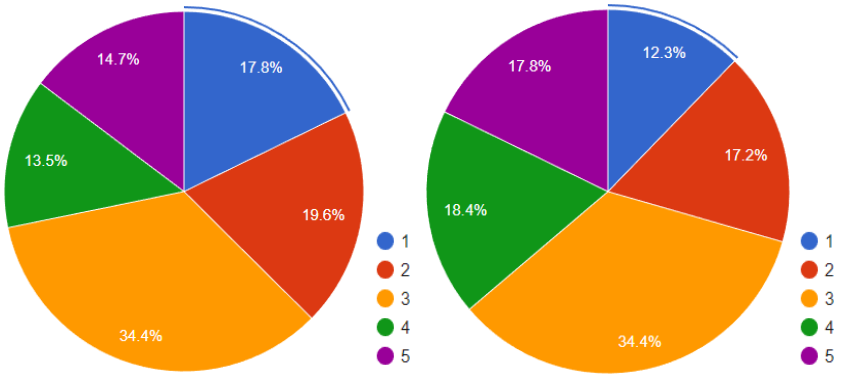
Supervision and Coordination (self/colleague)



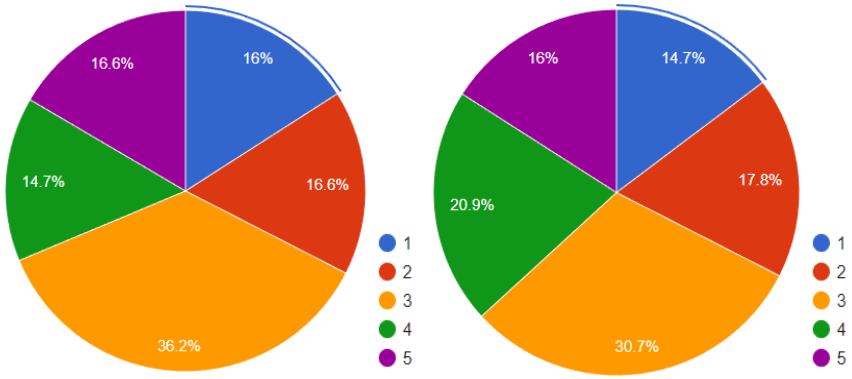
Computer Applications (self/colleague)



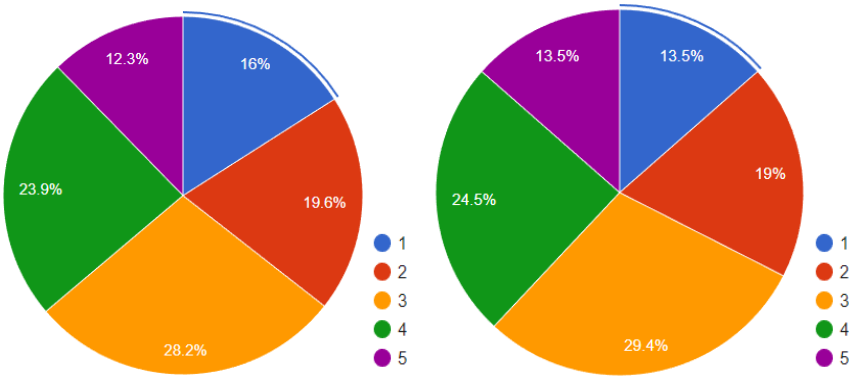
Budgeting & Costing for WRM (self/colleague)



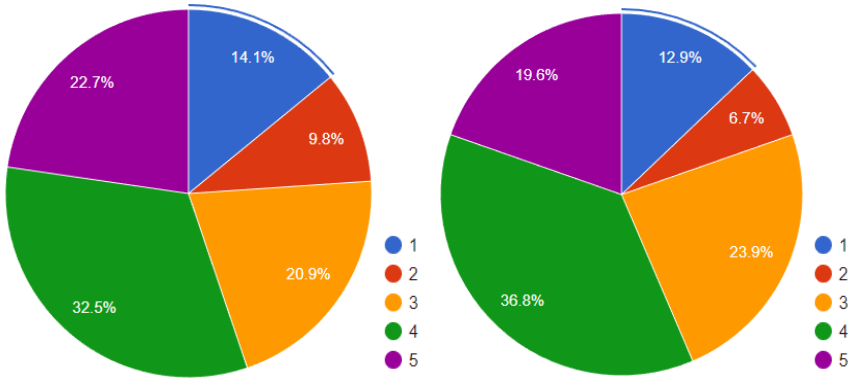
Contracting mechanisms (self/colleague)



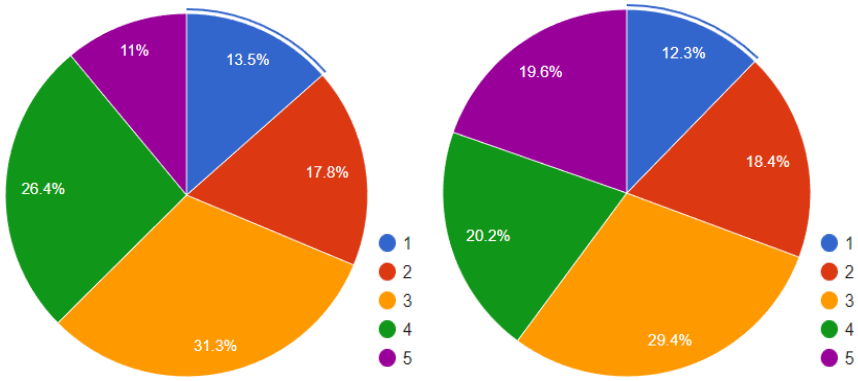
Training & Capacity Building (self/colleague)



Communication Skills (self/colleague)

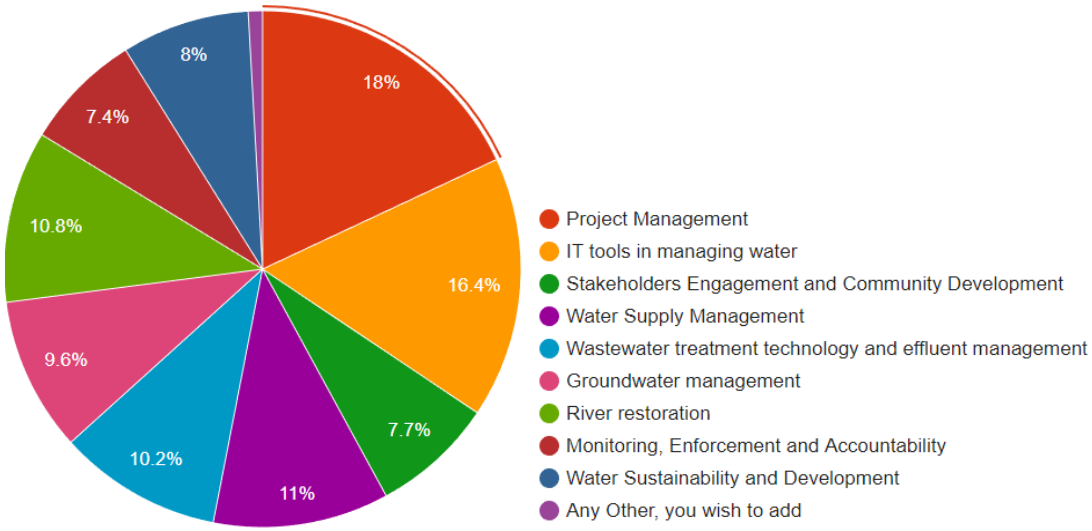


Integrated water resources management (self/colleague)



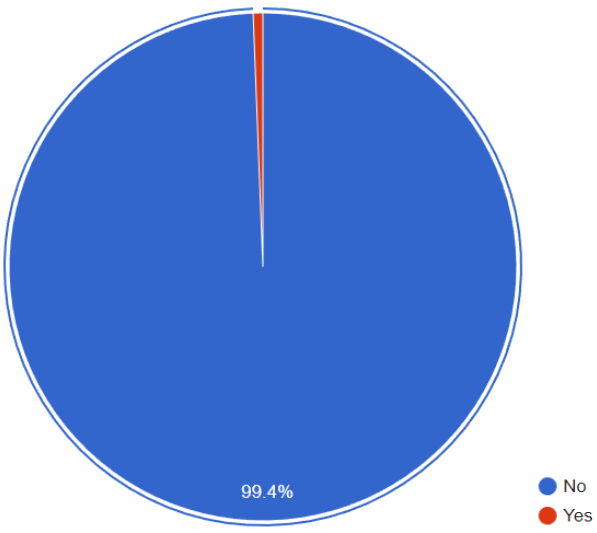
Highest training need is in the field of ***budgeting & costing for WRM****, then in the field of* ***contracting mechanisms*** *and* ***training & capacity building.*** *Smallest need for training is in the field of* ***computer applications, communication skills*** *and* ***supervision and coordination****.*

- Please indicate the areas of training needs for you and colleagues in your category to increase the competencies in managing WM services. You may tick more than one.



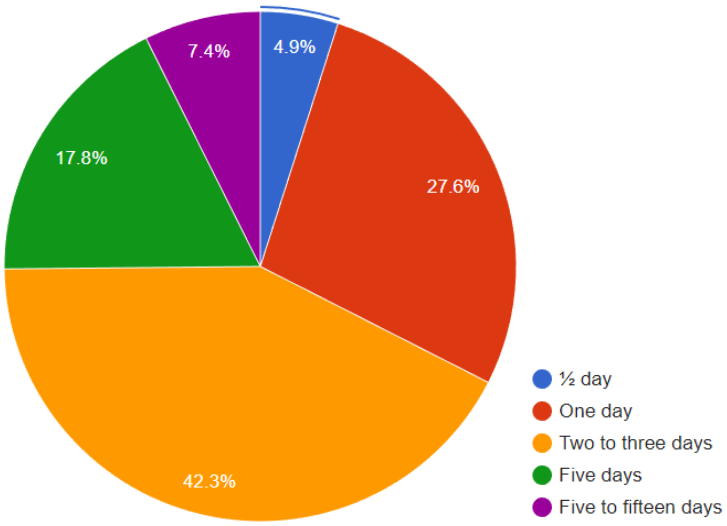
The areas which are increasing the competencies in managing WM services and which have highest training needs are as follows: ***project management*** *(18%),* ***IT tools and managing water*** *(16%),* ***water supply management*** *(11%),* ***river restoration*** *(10.8%) and* ***wastewater treatment technology and effluent management*** *(10.2%). Other areas such as* ***groundwater management*** *and* ***water sustainability and development*** *have moderate training needs between 8% and 9.6%. Lowest training needs are in the area of* ***monitoring, enforcement and accountability*** *and* ***stakeholder's engagement and community*** *which have between 7.4% and 8% positive answers from all investigated institutions and examinees.*

- Have you or any one of your colleagues received training on the subject of WM? If yes, please provide details.



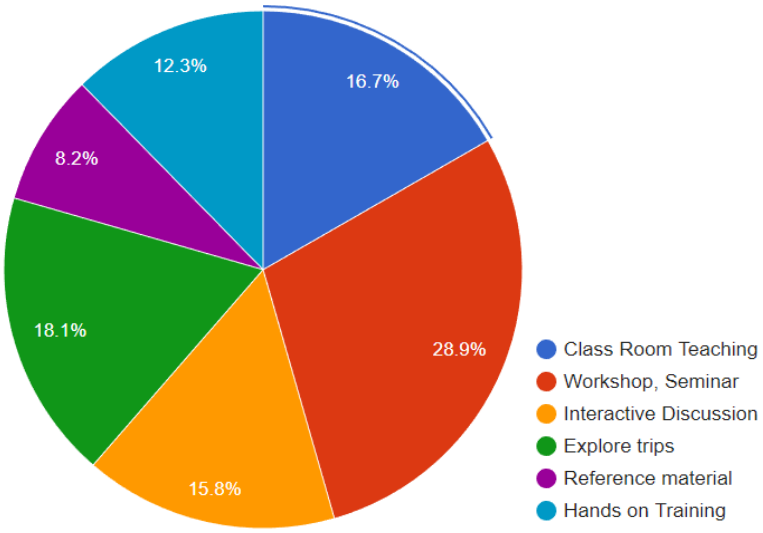
Extremely high percentage (99.4%) of all investigated examinees did not receive any training in the field of Water Resource Management.

- Please suggest the duration of training for your group. Please tick appropriate.



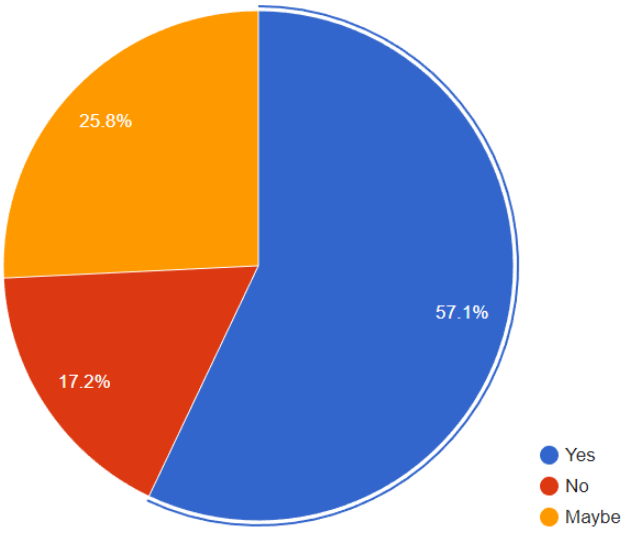
Most of the examinees (42.3%) suggested training duration between ***two and three days****, then 27.6% of them suggested* ***one day*** *training and 17.8% suggested* ***five day*** *training. Small percentage of examinees suggested* ***five to ten days*** *training and smallest number of examinees (4.9%) suggested* ***half day*** *training.*

- What is your preferred mode of training? You may tick more than one.



Most preferred model of training is ***workshop*** *or* ***seminar****, but also great number of examinees prefers* ***explore trips****,* ***class room teaching*** *and* ***interactive discussions****. Least preferred model of training is* ***reference material*** *with no additional activities.*

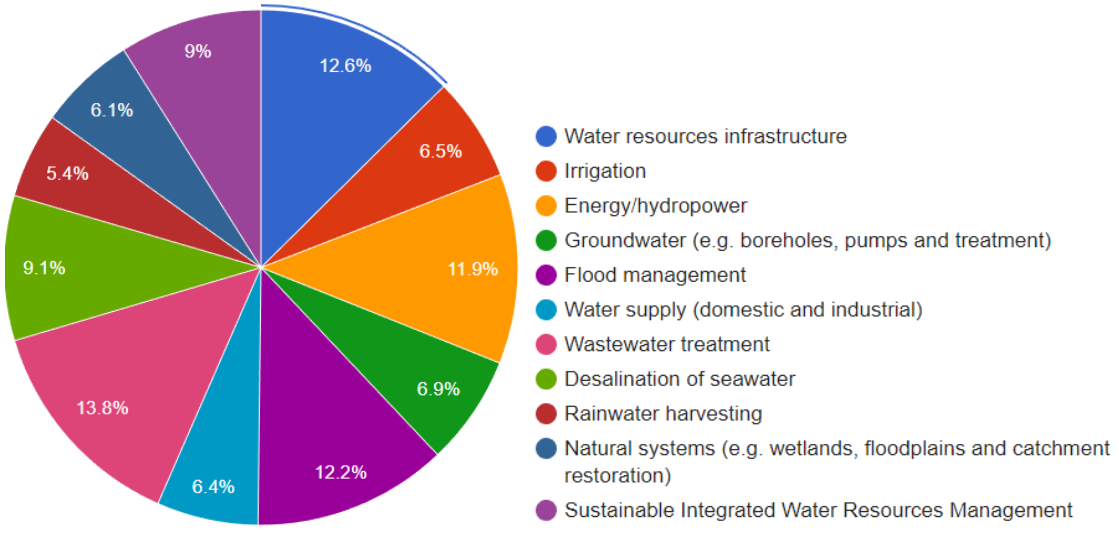
- Are you willing to go to a certified training institution for receiving training on the identified areas of improvements for WM?



Most of the examinees (57.60%) are willing to go to a certified training institution for receiving training, some of the examinees are not sure (25.80%) and small percentage of examinees are not willing to go to other institution to receive training.

Fifth group of questions: Technical Training

- Indicate your preferable technical training. You may tick more than one.



Most preferable technical training is in the area of ***wastewater treatment*** *(13.8%). Also significant technical teaching areas are* ***water resource infrastructure***, ***flood management***, ***energy and hydropower***. *Moderate technical training need is in the area of* ***sustainable integrated water management***, ***desalination of seawater*** *and* ***groundwater***. *Finally, the most no preferable areas are* ***irrigation***, ***water supply***, ***natural systems*** *and lowest interest is for area of* ***rainwater harvesting*** *(5.4%).*

3.2.2 Survey conclusion

Results of the survey indicate that most of the examinees are dealing with technical and engineering aspects. Majority of the examinees in all investigated Institutions are aware with EU Water Laws, National Water Laws and Regional Water Laws and corresponding Policy or Strategic Plans, but on the other hand significant number of examinees are not aware with other national instruments that may incorporate Water Resources Management activities.

Level of compliance is the highest in the field of surface water and groundwater management. The smallest level of compliance is in the field of land/natural resources management programs that include water resources management components and programs for re-use or recycling of water but all investigated organizations are very familiar and they have more than 50% of good and very good level of compliance in all Water Resource Management Programs.

The most important data obtained during survey and analysis is extremely high percentage (99.4%) of examinees which did not receive any training in the field of Water Resource Management. Based on this very important information, there is a great necessity and need for training in the areas which are most needed.

Highest training need is in the field of budgeting & costing for WRM, then in the field of contracting mechanisms and training & capacity building. Smallest need for training is in the field of computer applications, communication skills and supervision and coordination. The training needs for all investigated institutions and examinees in all areas and fields are very high but very different when we observe the combined results of the survey, so the training needs should be adapted to the needs of each institution in particular.

The areas which are increasing the competencies in managing WM services and which have highest training needs are as follows: project management, IT tools and managing water, water supply management, river restoration and wastewater treatment technology and effluent management. Other areas such as groundwater management and water sustainability and development have moderate training needs and lowest training needs are in the area of monitoring, enforcement and accountability and stakeholder's engagement and community.

Most of the examinees suggested training duration between two and three days, significant number of them suggested one day training and small number of them suggested half day, five and five to ten days training. Also most of the examinees are willing to go to a certified training institution and to attend training. Most preferred model of training is workshop or seminar, but also great number of examinees prefers explore trips, class room teaching and interactive discussions. Least preferred model of training is reference material with no additional activities.

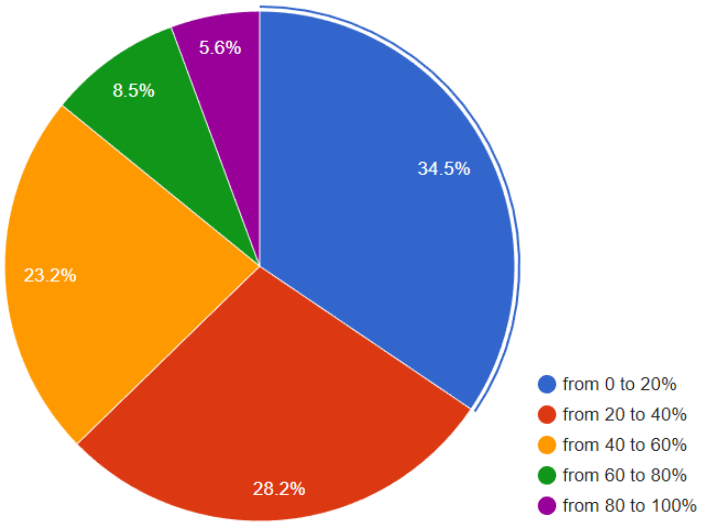
Most preferable technical training is in the area of wastewater treatment. Also significant technical teaching areas are water resource infrastructure, flood management, energy and hydropower. Moderate technical training need is in the area of sustainable integrated water management, desalination of seawater and groundwater. Finally, the most no preferable areas are irrigation, water supply, natural systems and lowest interest is for area of rainwater harvesting. Also, it can be noted that there are many areas that are equally interesting and which are indicate the need for interdisciplinary training, but also need for organizing several independent trainings depending on the institution preferable area of interest.

3.3 P9 - University of Sarajevo – UNSA

3.3.1 Survey results

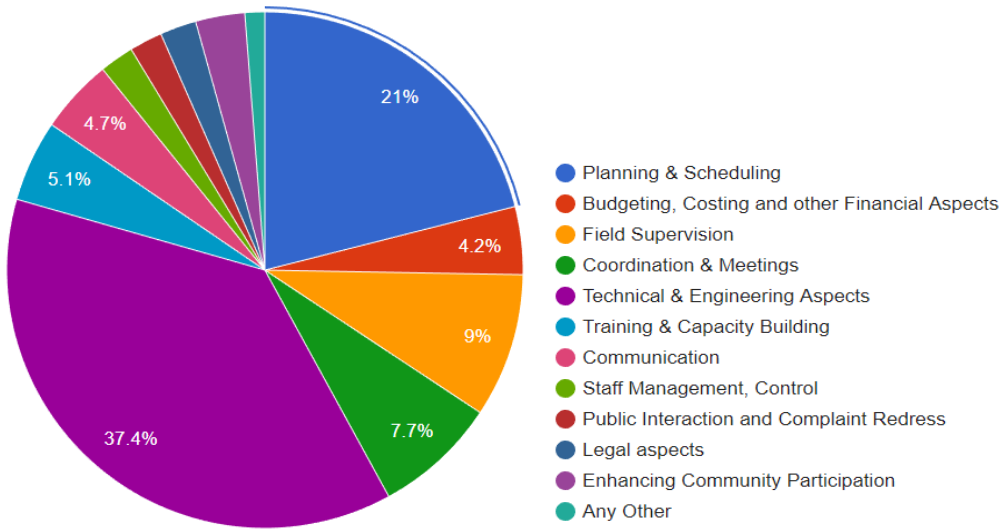
Second group of questions: Job Responsibilities as regards to Water Management in the organization

- In your present position, how much time do you devote for carrying work related to Water Resources Management?



The diagram shows that over half of the respondents (62.7%) are in the group whose work is related to water resource management ***up to 40%*** *of the total working hours. About 23.2% are those who devote* ***up to 60%*** *of working time to this topic. While only 14.1% of those dealing with water management, spend* ***over 60%*** *working hours.*

- In your present position, what are your responsibilities for Water Resources Management? You may tick more than one.

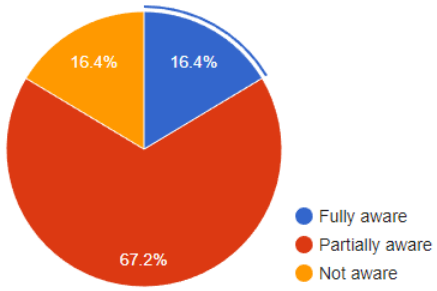


The most survey participants are responsible for ***Technical and Engineering Aspects*** *(37.4%), and for* ***Planning and Scheduling*** *(37.4%). There is the smallest percentage of the participants involved in* ***Staff Management, Control, Public Interaction and Complaint Redress****, and* ***Legal Aspects****.*

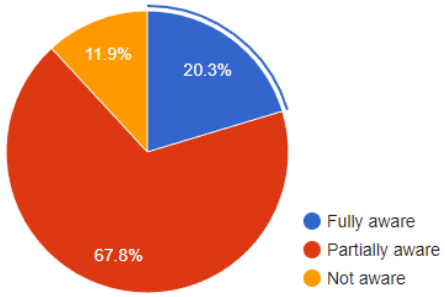
Third group of questions: Awareness, Knowledge to Water Resources Management Policy

- How aware are you of the instruments for Water Resources Management?

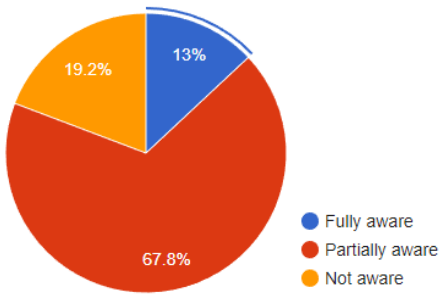
  — EU Water Law, Policy or Strategic Plan



  — National Water Law, Policy or Strategic Plan



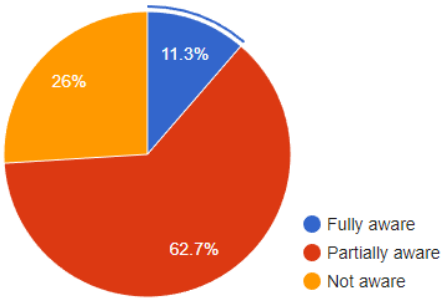
  — Regional Water Law, Policy or Strategic Plan



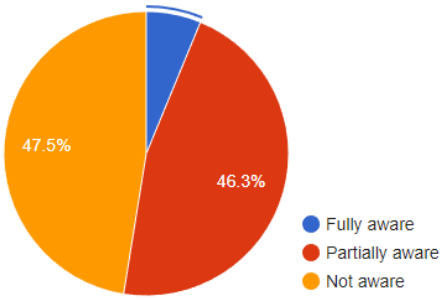
*The participants are "****partially aware****" (67.8%) of all three instruments for Water Resources Management.* ***Fully aware*** *are between 13% and 20% of the participants.*

- Are you aware of the other national instruments that may incorporate Water Resources Management?

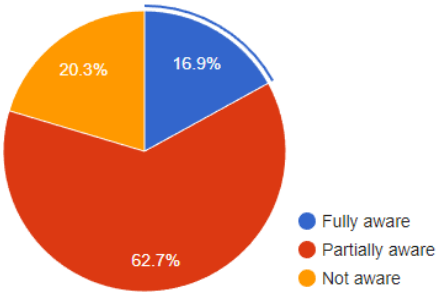
— Integrated national policy/strategy/plan for land and water resources management



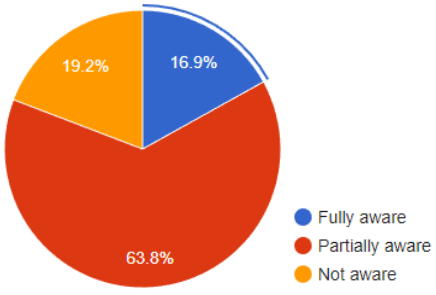
— Poverty Reduction Strategy (PRS) with water resources management component



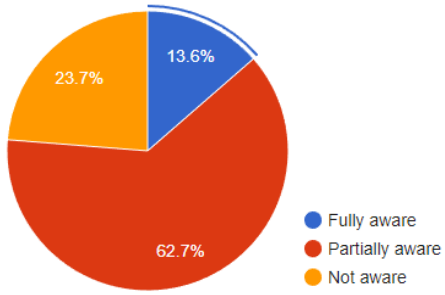
— National Strategy for Sustainable Development



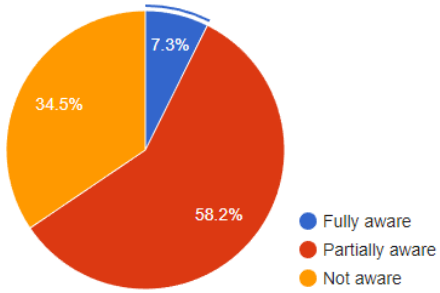
— National Development Plan with water resources management component



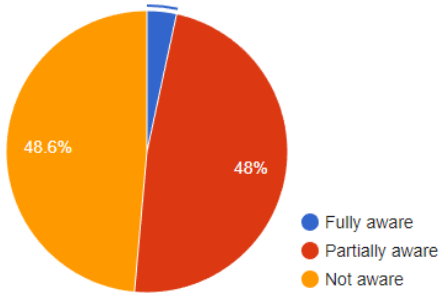
— National Environmental Action Plan water resources management component



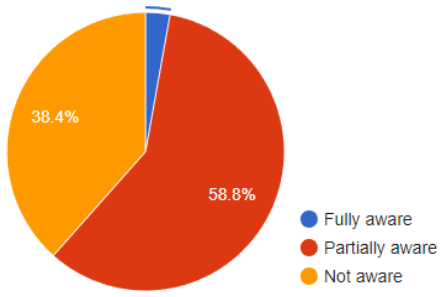
— National climate change adaptation policy/strategy/plan with water resources management component



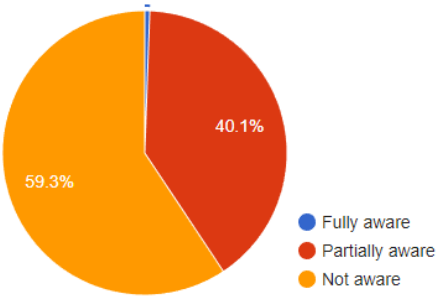
— National Agricultural Plan with water resources management component



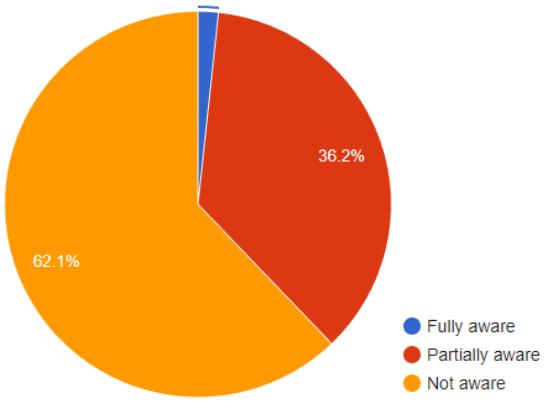
— National energy policy/strategy/plan with water resources management component



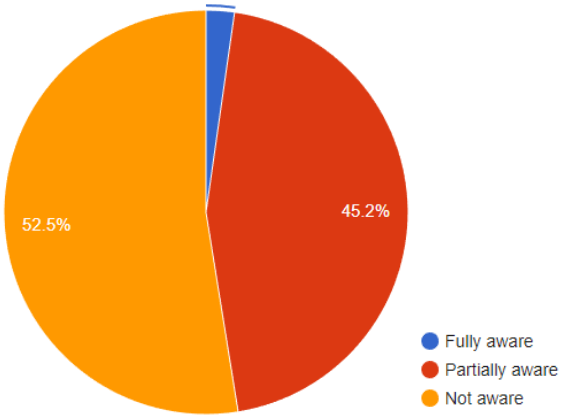
— National desertification policy/strategy/plan with water resources management component



— National wetland policy/strategy/plan with water resources management component



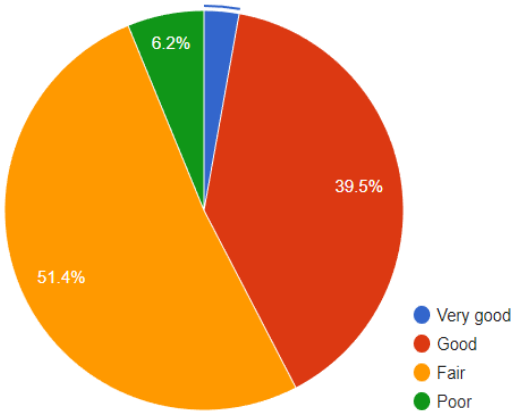
— National biodiversity policy/strategy/plan with water resources management component



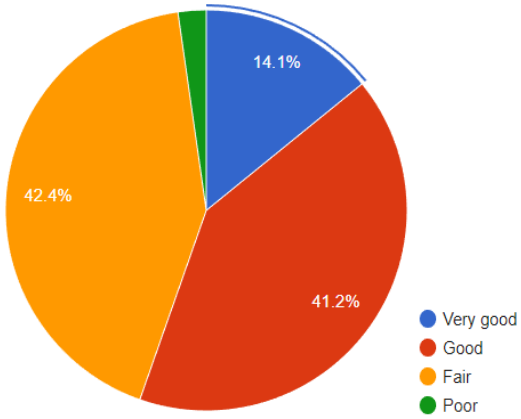
*The majority of participants are "**partially aware**" of the national instruments that may incorporate Water Resources Management, but also there is a significant percentage of participants that are not aware of the national instruments according to energy, desertification, wetland, and biodiversity (up to 62%). About 63.8% of participants are "**partially aware**", of the National Development Plan with water resources management component then 62.1% "**not aware**" of the National wetland policy/strategy/plan with water resources management component, and only 0.6% "**fully aware**" of the National desertification policy/strategy/plan with water resources management component.*

- According to you, what is the level of compliance in your organization as regards to various actions described in the table below? Please tick, as you feel appropriate.

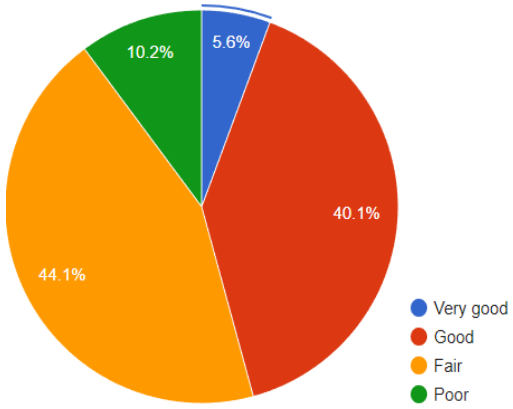
— Groundwater management program



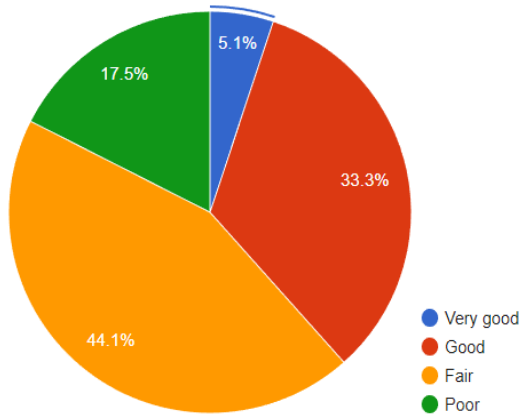
— Surface management program



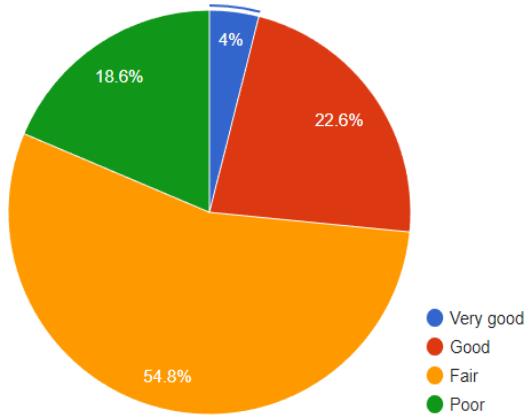
— Linked ground and surface water management program



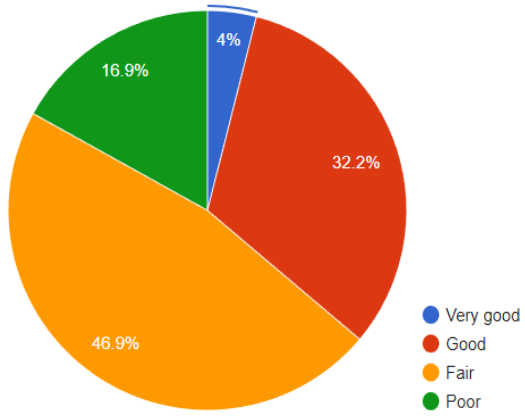
— Programs for efficient allocation of water resources among competing uses



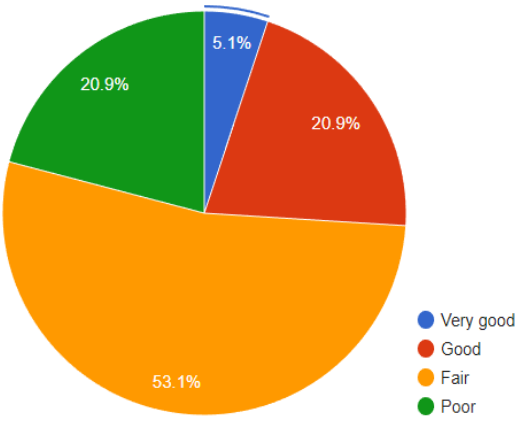
— Land/natural resources management programs that include water resources management components



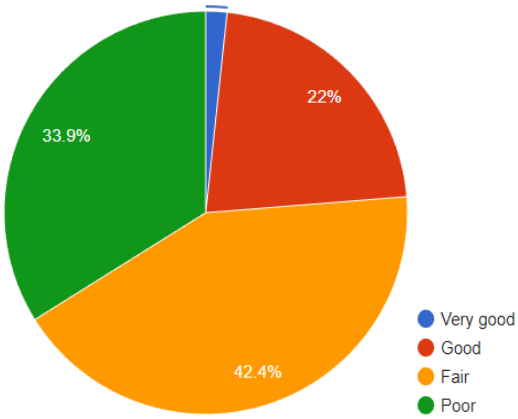
— Programs for allocating water resources that include environmental considerations



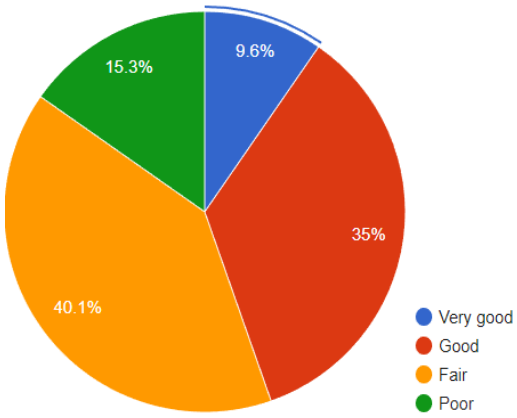
— Demand management measures to improve water use efficiency in all sectors



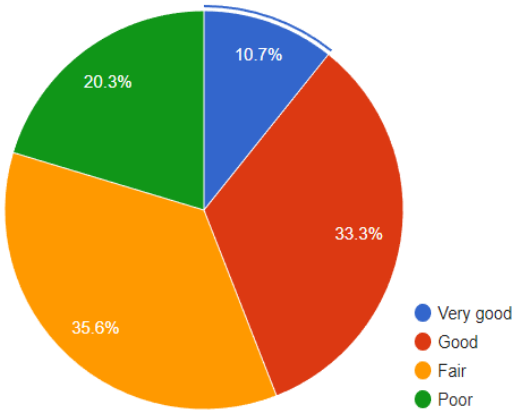
— Program for re-use or recycling of water



— Programs to evaluate environmental impacts of water projects



— Programs to address water-related disasters (e.g. floods and droughts)

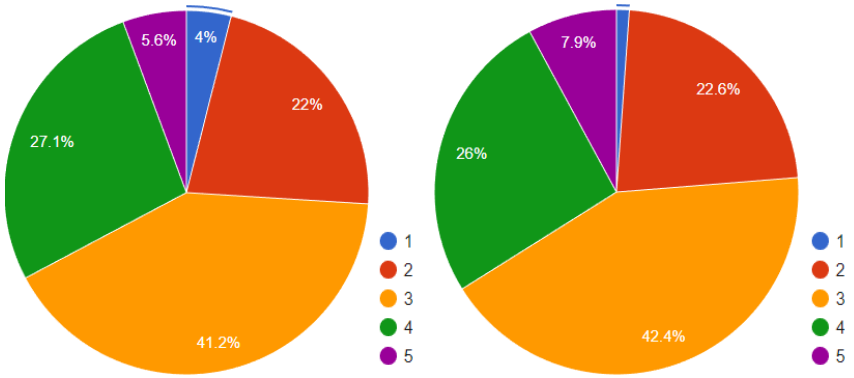


*Generally, the majority of participants have a "**good**" to "**fair**" level of compliance in the organization as regards to various actions. The Surface management program has the highest percentage of positive responses. Actually, it has 14.1% of answers as "**very good**", and 41.2% of answers like "**good**". The highest percentage of the negative answers have the Land/natural resources management program that includes water resources management components were 54.8% of participants answered "**fair**", and for the Program for re-use or recycling of water 33.9% of participants answered „**poor**".*

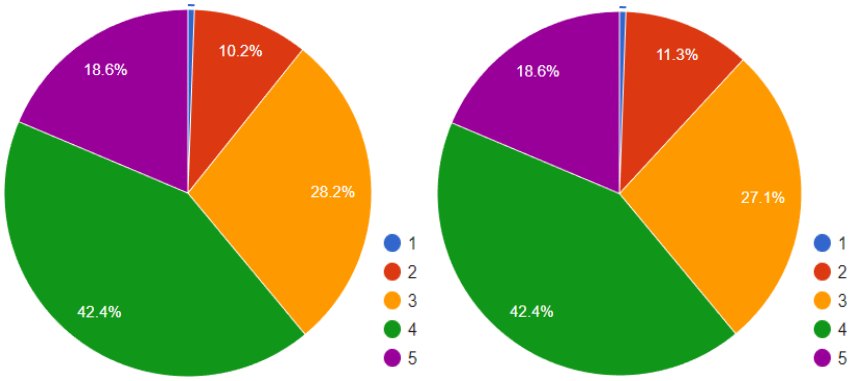
Fourth group of questions: Training Need

- Please read each of the abilities carefully and rate yourself and your colleagues on the same on the basis of five point rating scale. (Five is the highest and one is lowest)

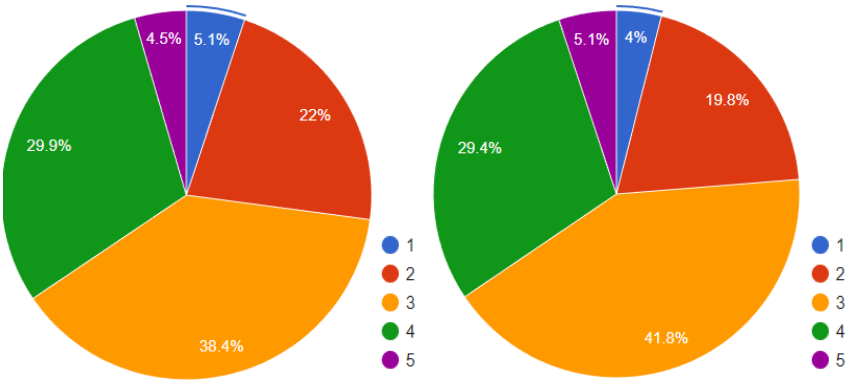
Understanding WRM procedures (self/colleague)



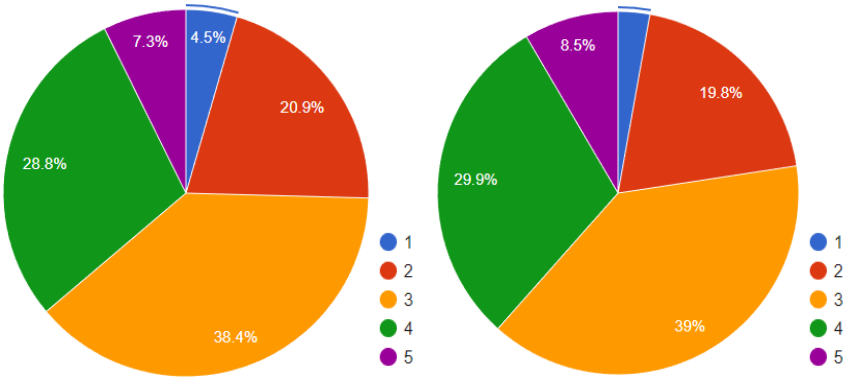
Technical & Engineering aspects (self/colleague)



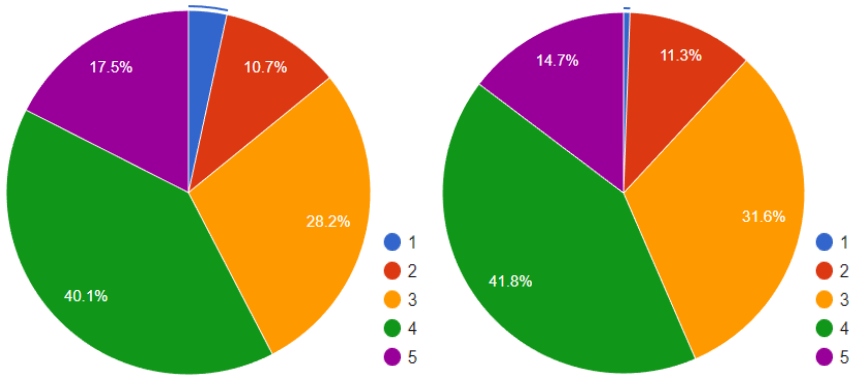
Institutional aspects (self/colleague)



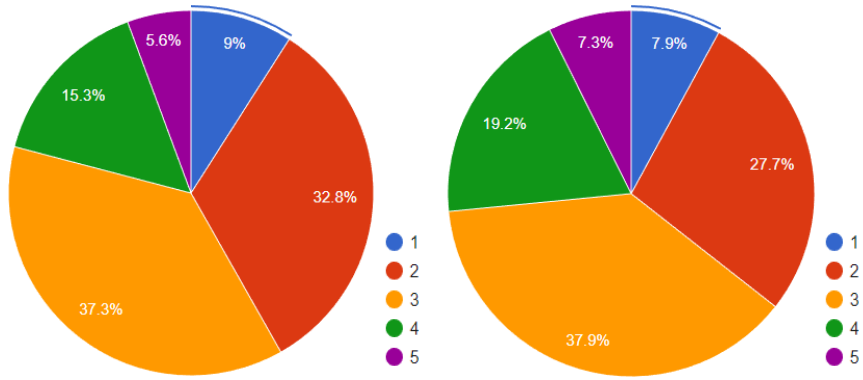
Supervision and Coordination (self/colleague)



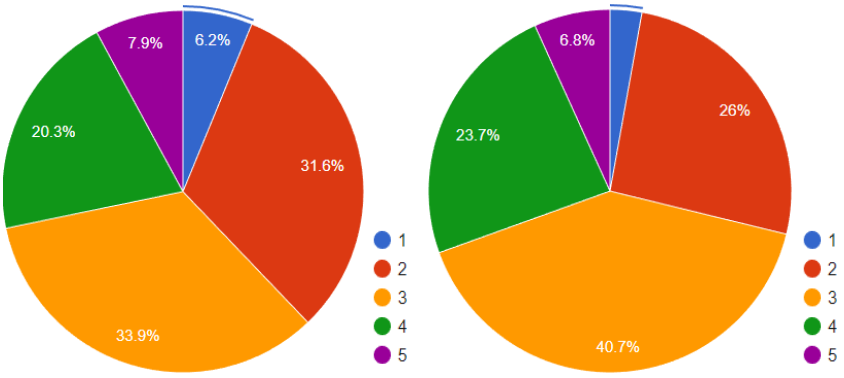
Computer Applications (self/colleague)



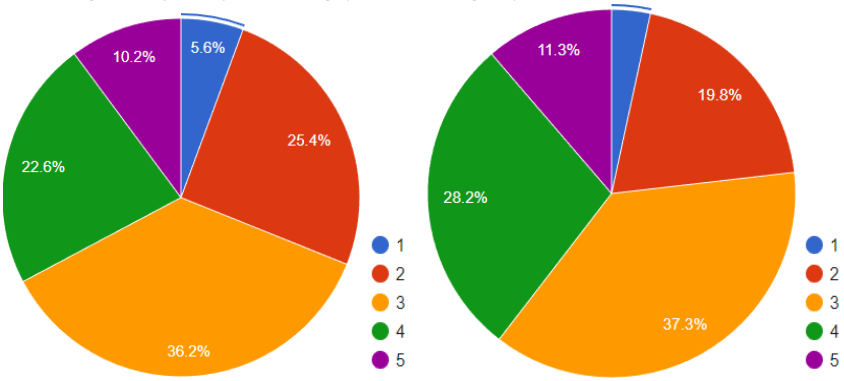
Budgeting & Costing for WRM (self/colleague)



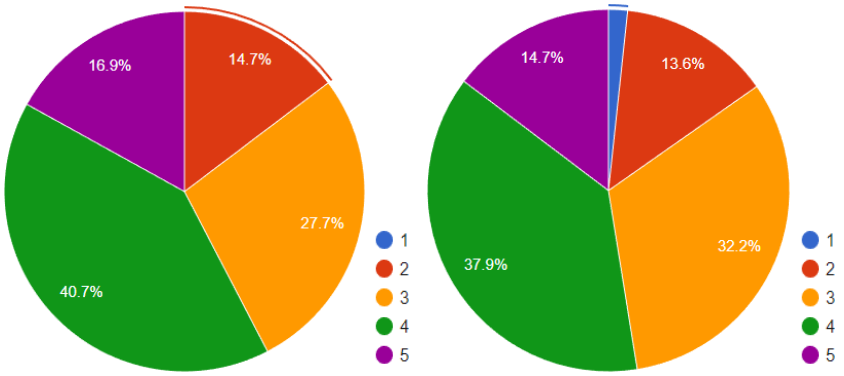
Contracting mechanisms (self/colleague)



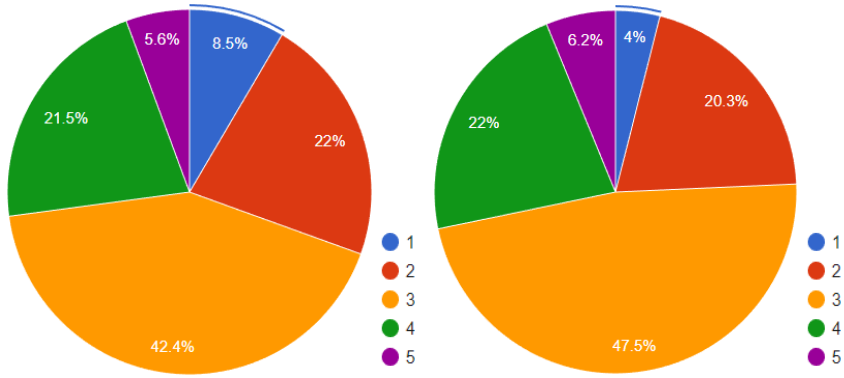
Training & Capacity Building (self/colleague)



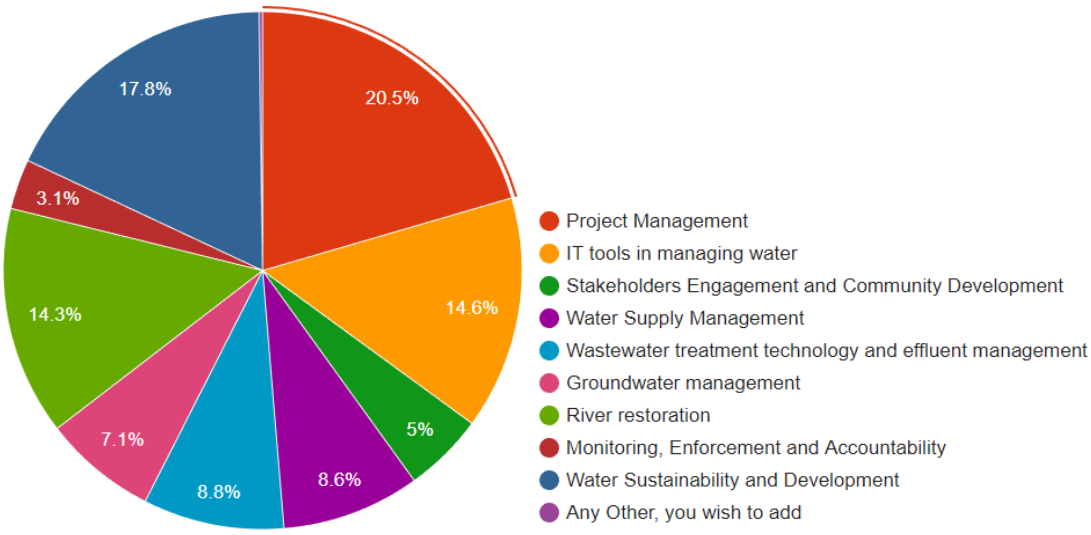
Communication Skills (self/colleague)



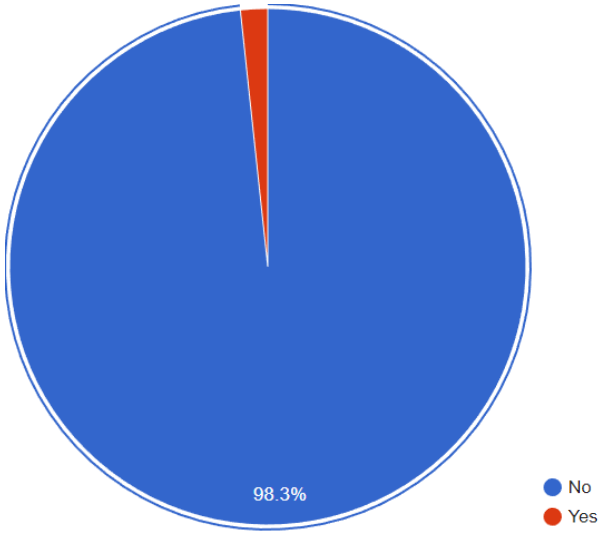
Integrated water resources management (self/colleague)



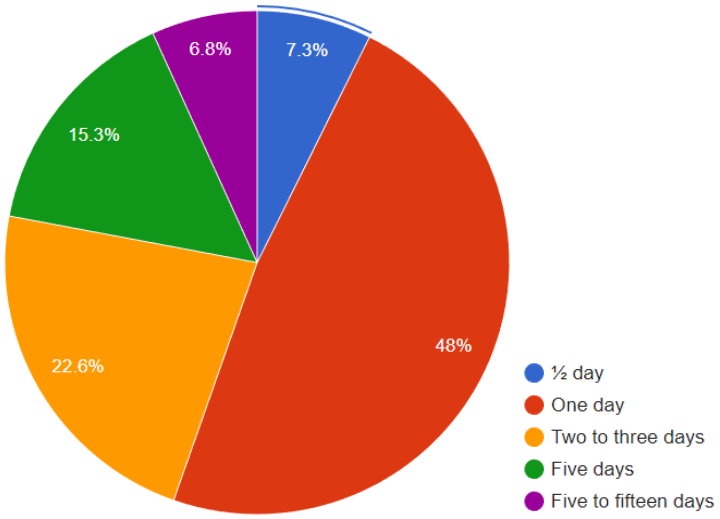
- Please indicate the areas of training needs for you and colleagues in your category to increase the competencies in managing WM services. You may tick more than one.



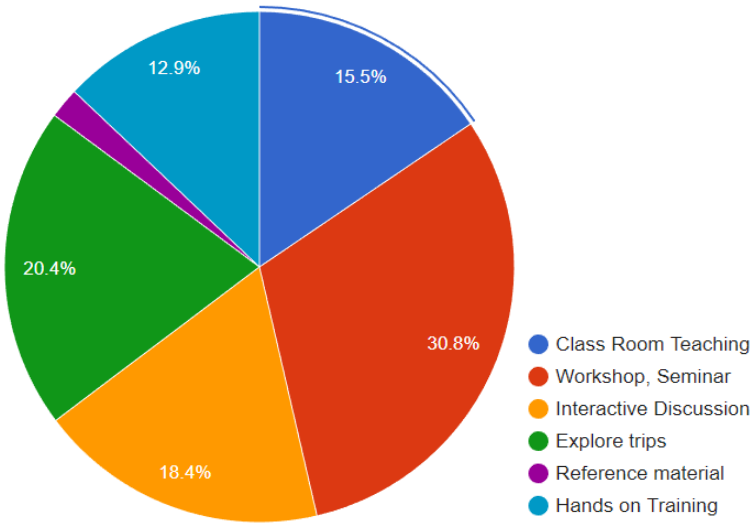
- Have you or any one of your colleagues received training on the subject of WM? If yes, please provide details.



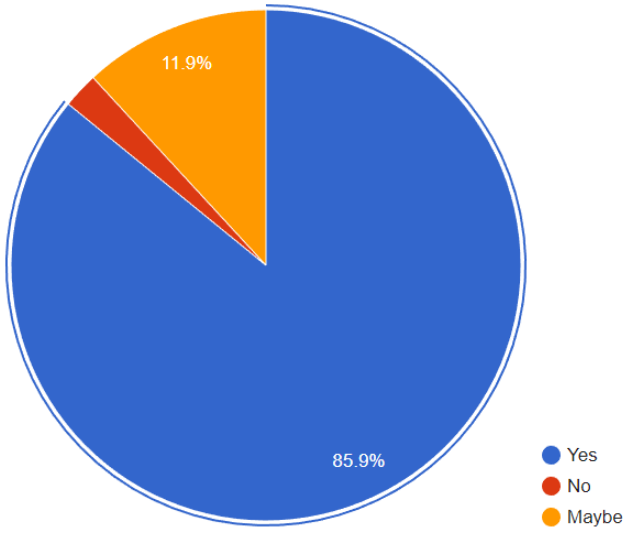
- Please suggest the duration of training for your group. Please tick appropriate.



- What is your preferred mode of training? You may tick more than one.



- Are you willing to go to a certified training institution for receiving training on the identified areas of improvements for WM?



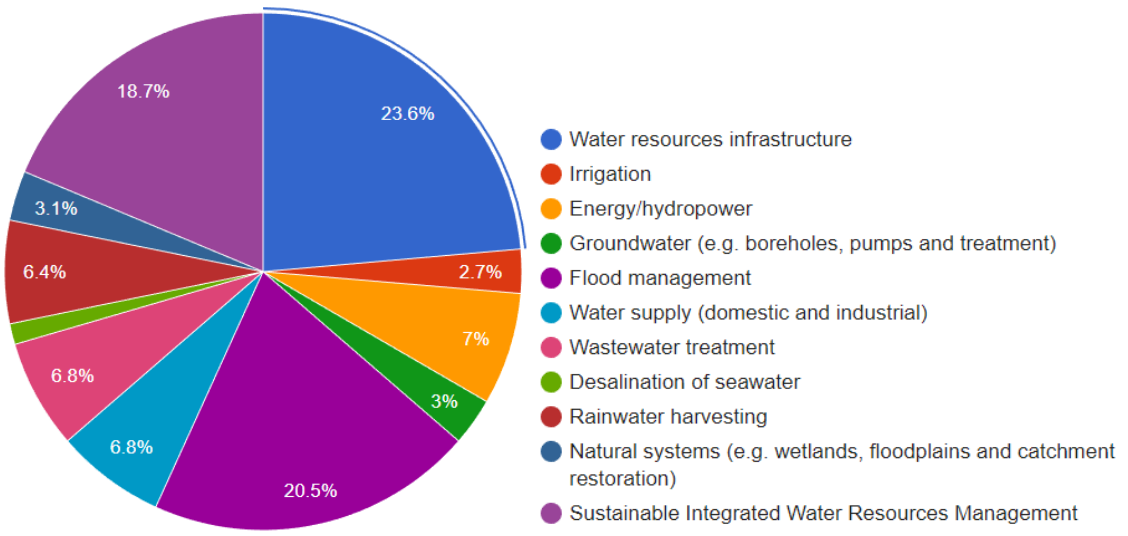
In the fourth group of questions related to training need the first 10 questions to relate to the participant and his colleague. Generally, the answers are similar for both of them. The highest percentage of responses with scores ***4*** *and* ***5*** *has the question "Technical & Engineering aspects" respectively 42.4% and 18.6%, for both participant and his colleague. The maximum of percentage with score* ***3*** *has the question "Integrated water resources management", 42.4% participant and, 47.5% colleague. Score* ***2*** *has a maximum of 32.8% (participant) and 27.7% (colleague) answers for the question "Budgeting & Costing for WRM". The worst score* ***1*** *has the same question.*

The areas of training needs for the participant and his colleagues to increase the competencies in managing WM services are ***Project Management*** *(20.5%),* ***Water Sustainability and Development*** *(17.8%), then* ***IT tools in managing water*** *(14.6%) and* ***River restoration*** *(14.3%). We could say that there wasn't received training on the subject of WM, but 85.9% of the participants are willing to go to a certified training institution for receiving training on the identified areas of improvements for WM.*

Almost half of the participants (48%) want to attend ***one-day*** *training, and about 23% want to attend "****two to three days****" training with preferred workshop, seminar and interactive discussion mode.*

Fifth group of questions: Technical Training

- Indicate your preferable technical training. You may tick more than one.



In the fifth group of questions related to Technical Training, the answers are various. We could draw out the next three answers as the most common answers: ***Water resource infrastructure*** *(23.6%),* ***Flood management*** *(20.5%), and* ***Sustainable Integrated Water Resources Management*** *(18.7%).*

3.3.2 Survey conclusion

This questionnaire is about analysed of water sector needs for LLL courses on the University of Sarajevo. We got 177 fulfilled questionnaires.

There are fifth groups of questions.

1. The first group of questions are generally data.

2. The second group of questions are about job responsibilities as regards to water management in the organization.

The answers showed that over half of the respondents (62.7%) are in the group whose work is related to water resource management up to 40% of the total working hours.

The most survey participants are responsible for Technical and Engineering Aspects (37.4%), and for Planning and Scheduling (37.4%). There is the smallest percentage of the participants involved in Staff Management, Control, Public Interaction and Complaint Redress, and Legal Aspects.

3. The Third group of questions are about: Awareness, Knowledge to Water Resources Management Policy.

The participants are “partially aware” (68%) of all three instruments for Water Resources Management (EU Water Law, National Water Law, and Regional Water Law). Fully aware are between 13% and 20% of the participants.

The majority of participants are “partially aware” of the national instruments that may incorporate Water Resources Management, but also there is a significant percentage of participants that are not aware of the national instruments according to energy, desertification, wetland, and biodiversity (up to 62%). About 63.8% of participants are “partially aware”, of the National Development Plan with water resources management component then 62.1% “not aware” of the National wetland policy/strategy/plan with water resources management component, and only 0.6% “fully aware” of the National desertification policy/strategy/plan with water resources management component.

Generally, the majority of participants have a “good” to “fair” level of compliance in the organization as regards to various actions. The Surface management program has the highest percentage of positive responses. Actually, it has 14.1% of answers as “very good”, and 41.2% of answers like “good”. The highest percentage of the negative answers have the Land/natural resources management program that includes water resources management components were 54.8% of participants answered “fair”, and for the Program for re-use or recycling of water 33.9% of participants answered „poor”.

4. In the fourth group of questions related to training need the first 10 questions to relate to the participant and his colleague. Generally, the answers are similar for both of them. The highest percentage of responses with scores 4 and 5 has the question “Technical & Engineering aspects” respectively 42.4% and 18.6%, for both participant and his colleague. The maximum of percentage with score 3 has the question “Integrated water resources management”, 42.4% participant and, 47.5% colleague. Score 2 has a maximum of 32.8% (participant) and 27.7% (colleague) answers for the question “Budgeting & Costing for WRM”. The worst score 1 has the same question.

The areas of training needs for the participant and his colleagues to increase the competencies in managing WM services are Project Management (20.5%), Water Sustainability and Development (17.8%), then IT tools in managing water (14.6%) and River restoration (14.3%). We could say that there wasn't received training on the subject of WM, but 85.9% of the participants are willing to go to a certified training institution for receiving training on the identified areas of improvements for WM.

Almost half of the participants (48%) want to attend one-day training, and about 23% want to attend "two to three days" training with preferred workshop, seminar and interactive discussion mode.

5. In the fifth group of questions related to Technical Training, the answers are various. We could draw out the next three answers as the most common answers: Water resource infrastructure (23.6%), Flood management (20.5%), and Sustainable Integrated Water Resources Management (18.7%).

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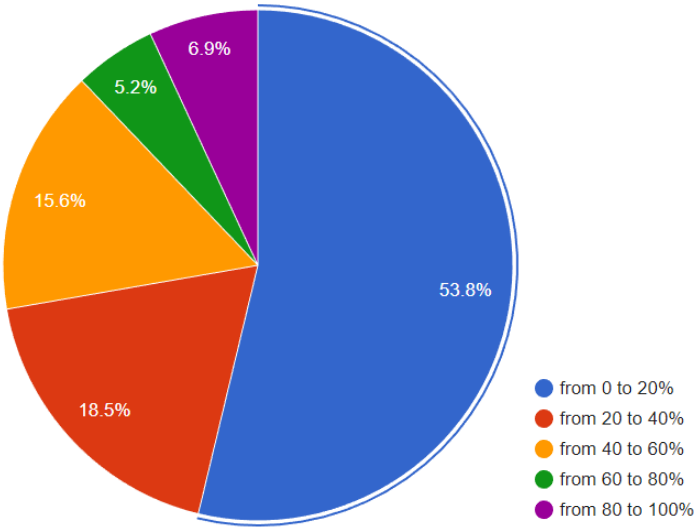
3.4.1 Survey results

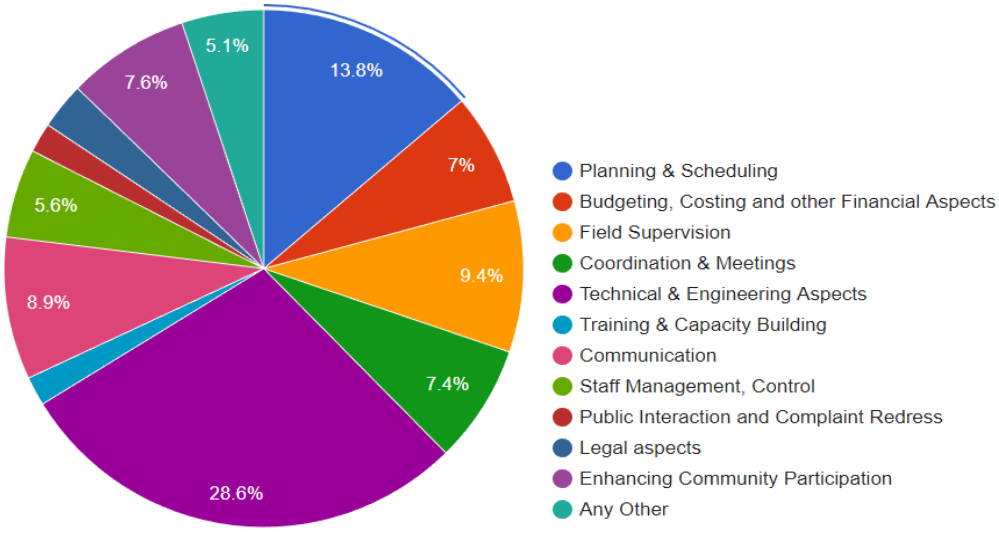
Second group of questions: Job Responsibilities as regards to Water Management in the organization

- In your present position, how much time do you devote for carrying work related to Water Resources Management?



Half of the respondents (53.8%) are in the group whose work is related to water resources management ***up to 20%*** *of the total working hours. About 34.1% respondents devote* ***up to 60%*** *of working hours to this topic, only 6.9% respondents devote* ***100%*** *of working hours.*

- In your present position, what are your responsibilities for Water Resources Management? You may tick more than one.

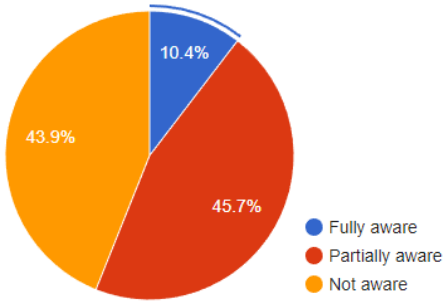


28.6% of respondents are responsible for ***Technical & Engineering Aspects****, as far as other areas they have equal distribution of human resources.*

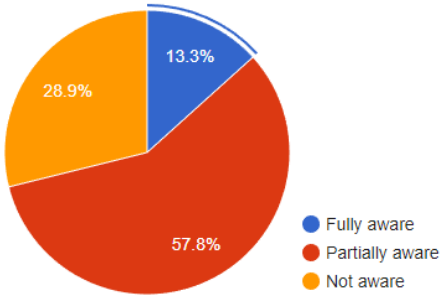
Third group of questions: Awareness, Knowledge to Water Resources Management Policy

- How aware are you of the instruments for Water Resources Management?

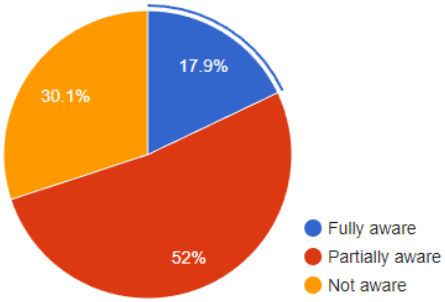
  — EU Water Law, Policy or Strategic Plan



  — National Water Law, Policy or Strategic Plan



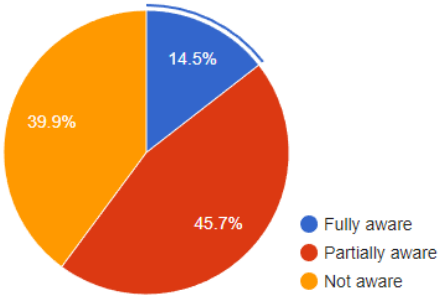
  — Regional Water Law, Policy or Strategic Plan



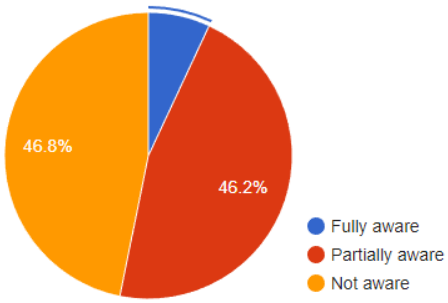
*More than half (52%) of the respondents are **partially aware** of the instruments for Water Resources Management on European, National and Regional Water Law. About 15% are **fully aware** about all three instruments for WRM.*

- Are you aware of the other national instruments that may incorporate Water Resources Management?

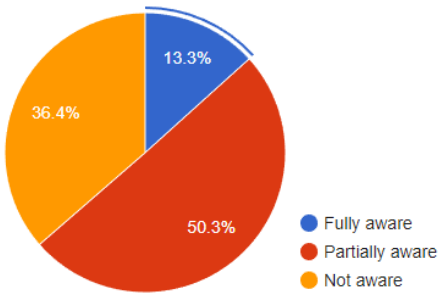
— Integrated national policy/strategy/plan for land and water resources management



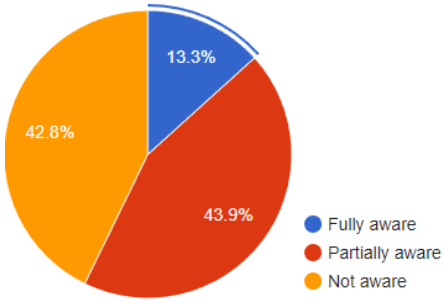
— Poverty Reduction Strategy (PRS) with water resources management component



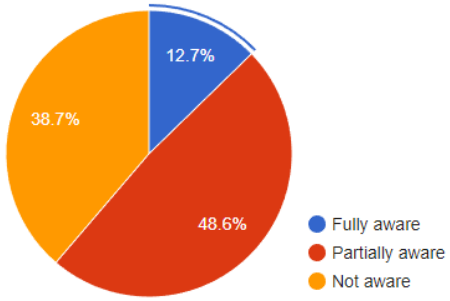
— National Strategy for Sustainable Development



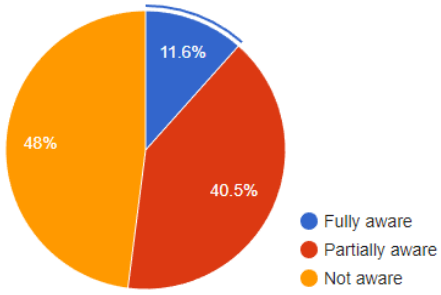
— National Development Plan with water resources management component



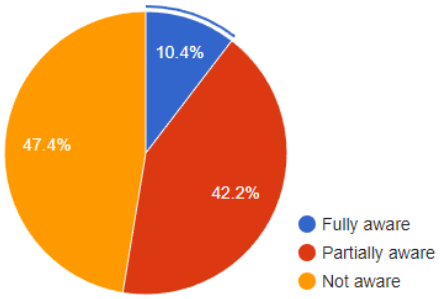
— National Environmental Action Plan water resources management component



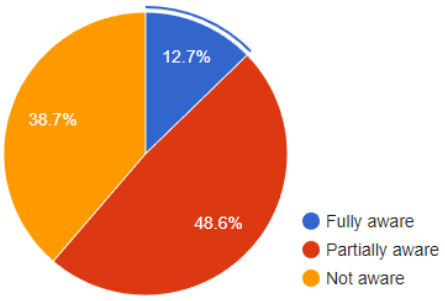
— National climate change adaptation policy/strategy/plan with water resources management component



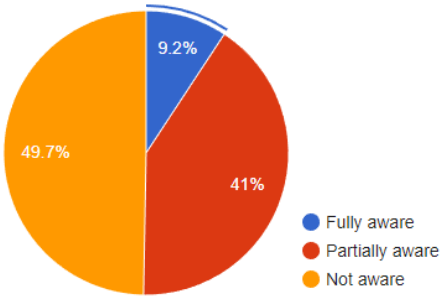
— National Agricultural Plan with water resources management component



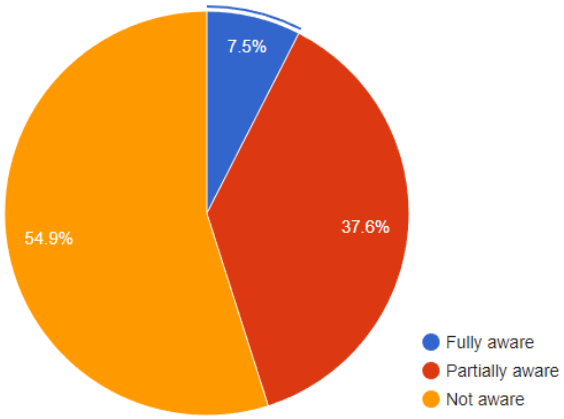
— National energy policy/strategy/plan with water resources management component



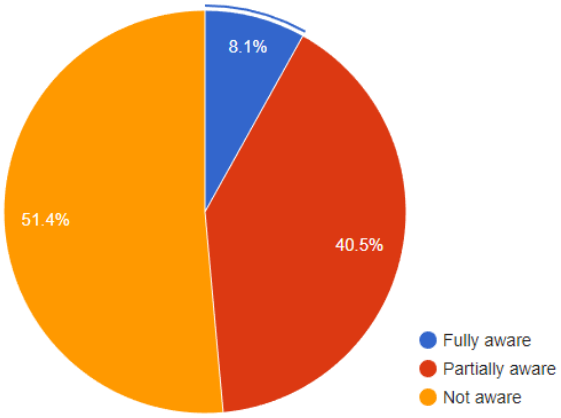
— National desertification policy/strategy/plan with water resources management component



— National wetland policy/strategy/plan with water resources management component



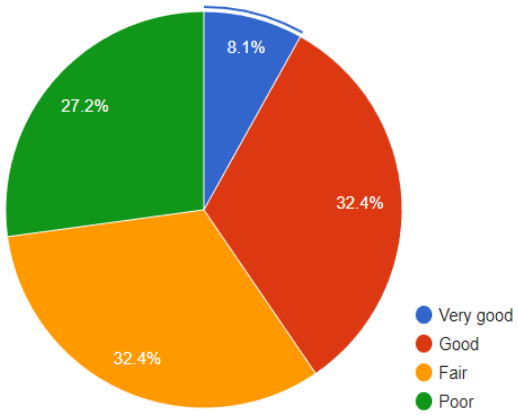
— National biodiversity policy/strategy/plan with water resources management component



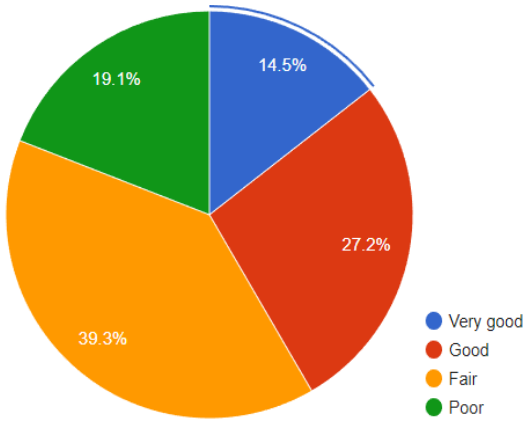
*More than half (52%) of the respondents are **fully** or **partially aware** of the other national instruments that may incorporate Water Resources Management.*

- According to you, what is the level of compliance in your organization as regards to various actions described in the table below? Please tick, as you feel appropriate.

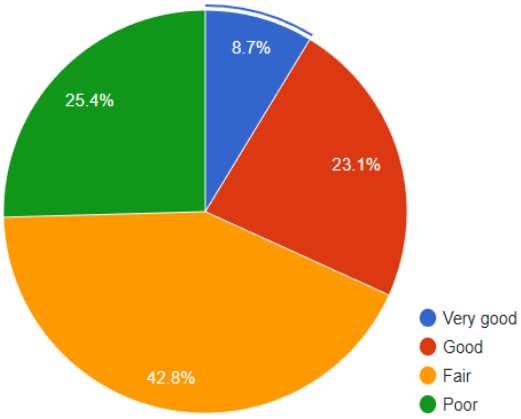
— Groundwater management program



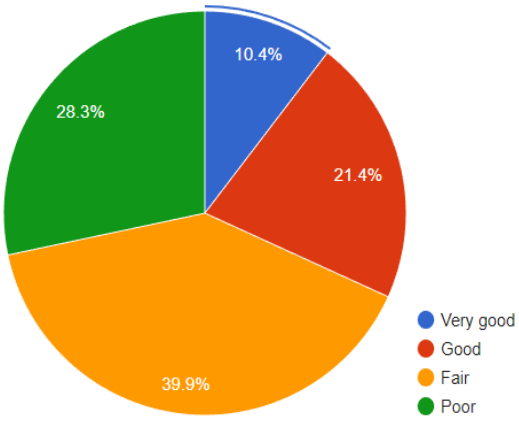
— Surface management program



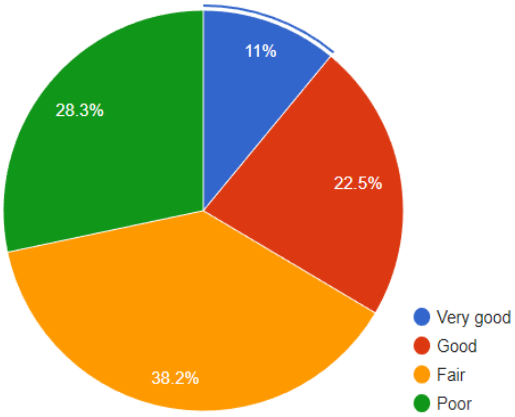
— Linked ground and surface water management program



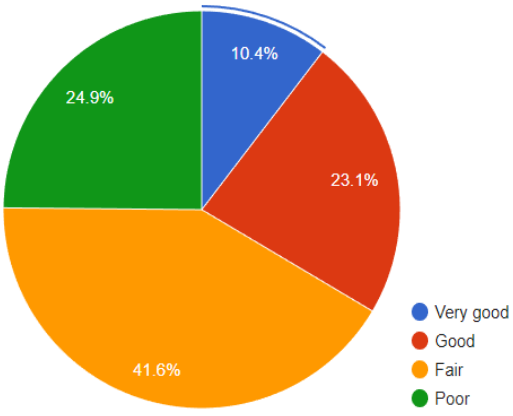
— Programs for efficient allocation of water resources among competing uses



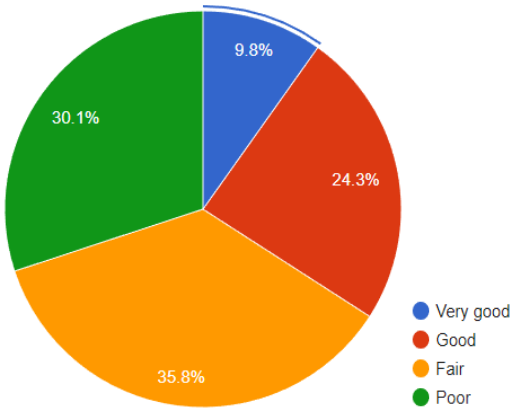
— Land/natural resources management programs that include water resources management components



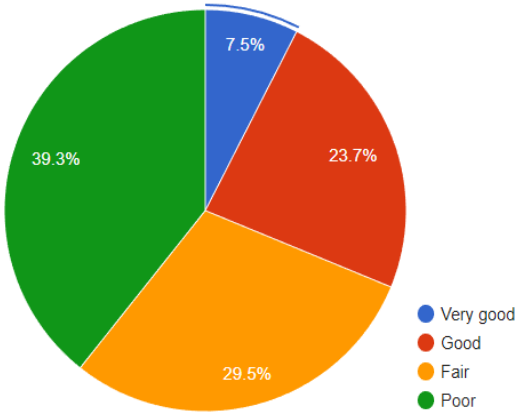
— Programs for allocating water resources that include environmental considerations



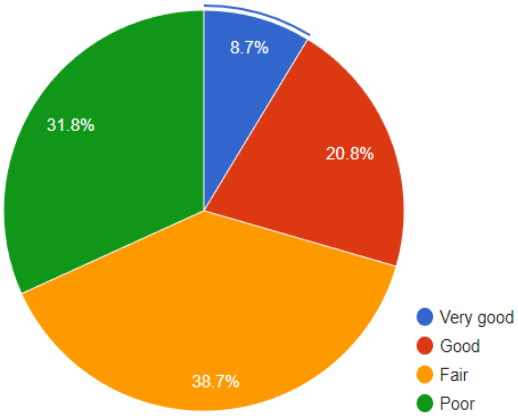
— Demand management measures to improve water use efficiency in all sectors



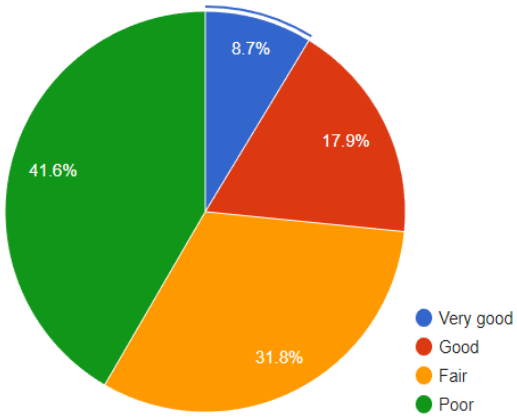
— Program for re-use or recycling of water



— Programs to evaluate environmental impacts of water projects



— Programs to address water-related disasters (e.g. floods and droughts)

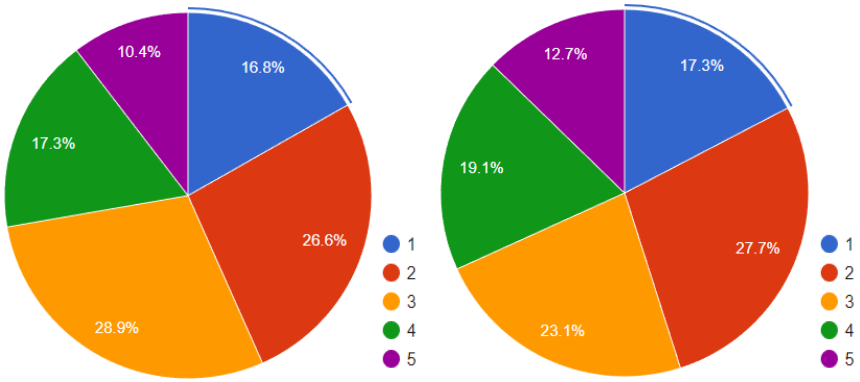


*About one third (35%) of participants have a **fair** level of compliance in the organization as regards to various actions, and about quarter (25%) of participants have a **good** level of compliance. 10% of the respondents have **very good** level of compliance for above listed actions.*

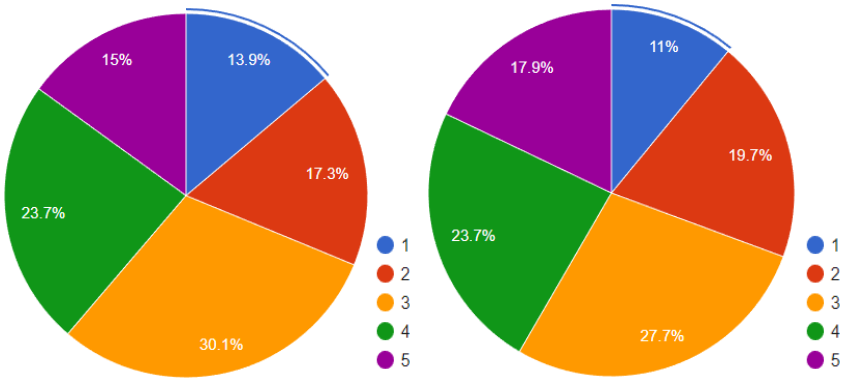
Fourth group of questions: Training Need

- Please read each of the abilities carefully and rate yourself and your colleagues on the same on the basis of five point rating scale. (Five is the highest and one is lowest)

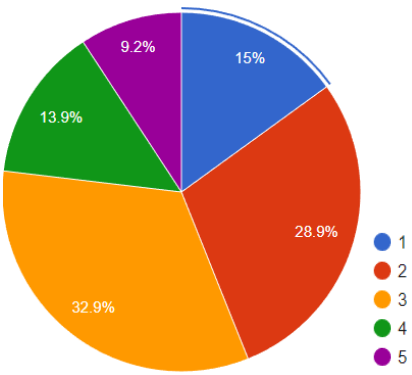
Understanding WRM procedures (self/colleague)

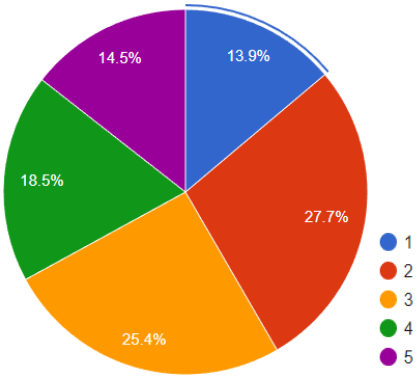


Technical & Engineering aspects (self/colleague)

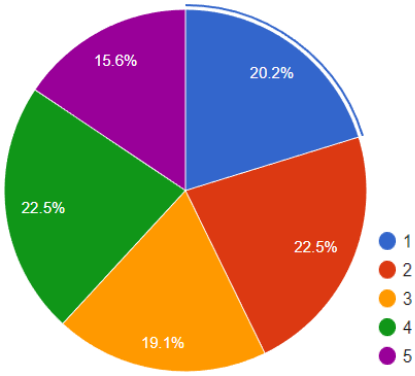


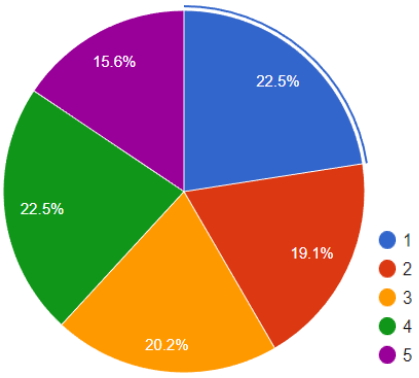
Institutional aspects (self/colleague)



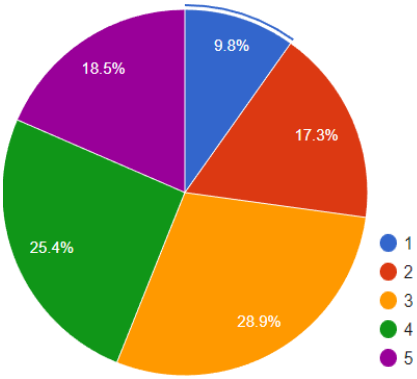


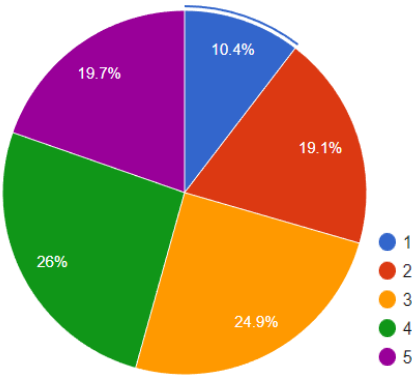
Supervision and Coordination (self/colleague)



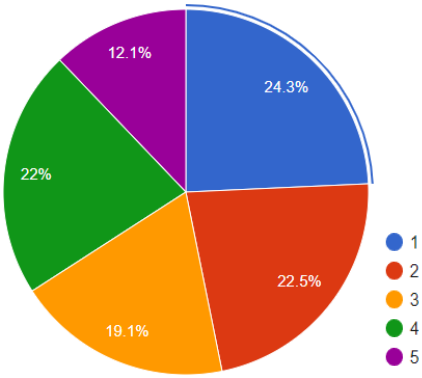


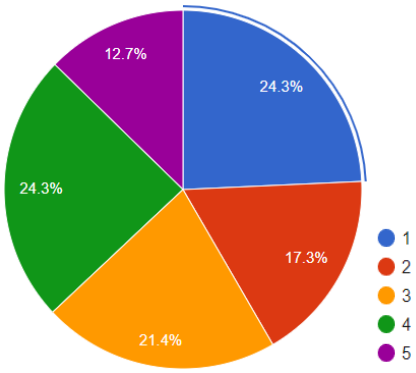
Computer Applications (self/colleague)



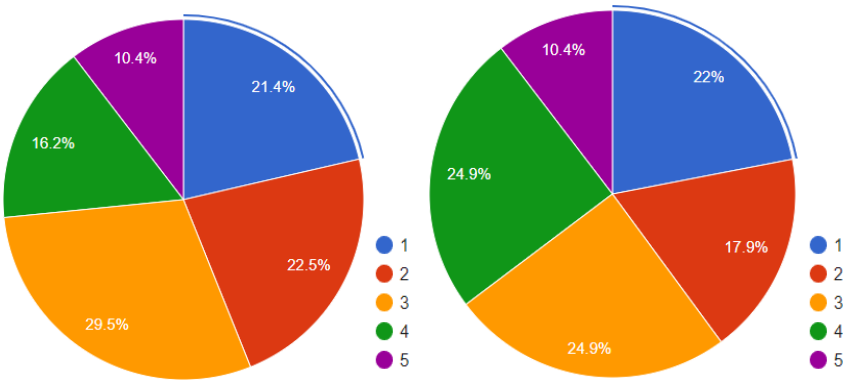


Budgeting & Costing for WRM (self/colleague)

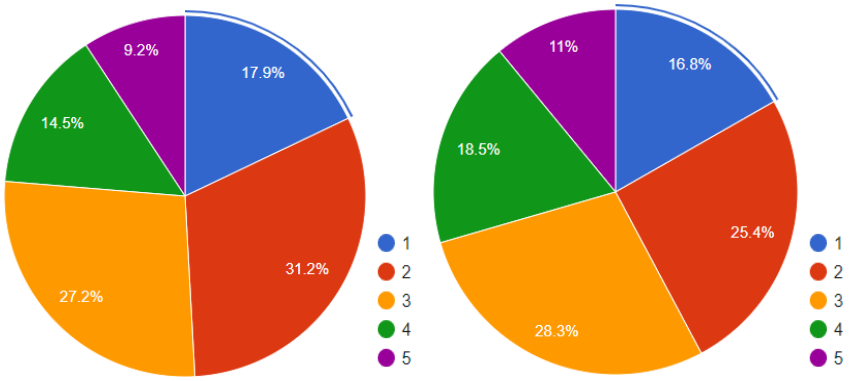




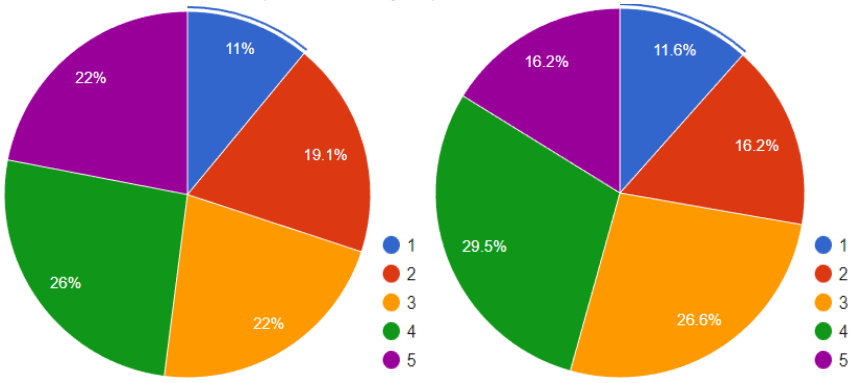
Contracting mechanisms (self/colleague)



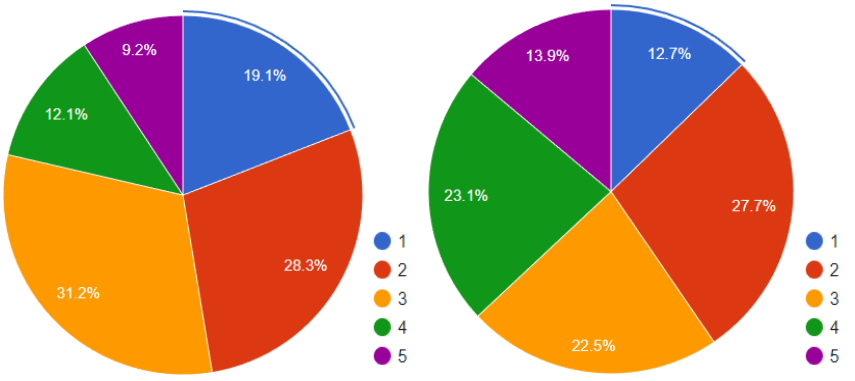
Training & Capacity Building (self/colleague)



Communication Skills (self/colleague)



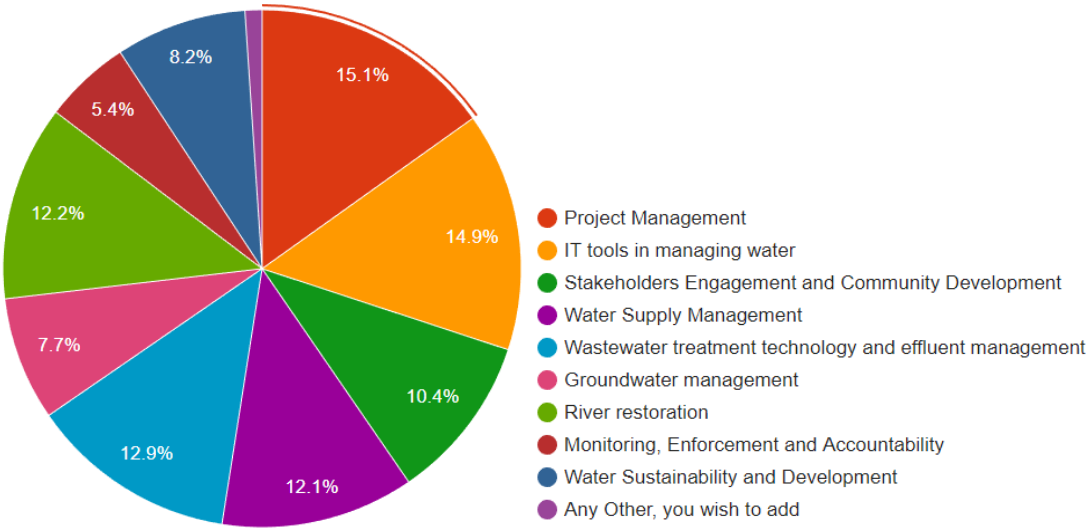
Integrated water resources management (self/colleague)



*The answers for respondent and colleague are quite similar. The highest percentage of responses for score **5** has the question "Communication skills" for respondent of 22%, and for colleague "Computer Applications" of 19.7%. Score **4** is highest for question "Communication skills" of 26% for respondent and 29.5% for colleague. "Institutional aspects" question has the highest*

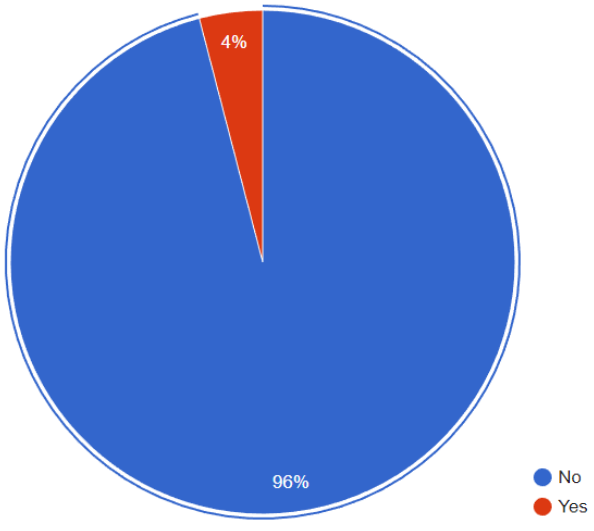
*percentage of score **3** for respondent and "Training & Capacity Building" for colleague of 28.3%. Score **2** has a maximum of 31.2% (respondent) for question "Training & Capacity Building" and 27.7% (colleague) has three questions. Score **1** is equal for both respondent and colleague for question "Budgeting & Costing for WRM" of 24.3%.*

- Please indicate the areas of training needs for you and colleagues in your category to increase the competencies in managing WM services. You may tick more than one.

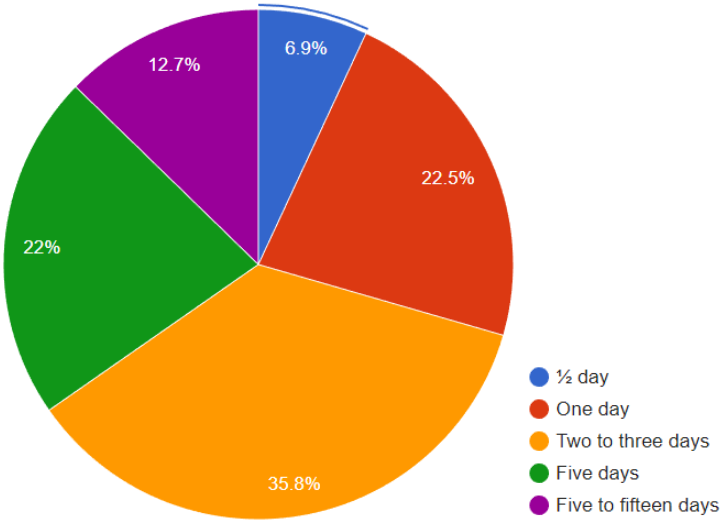


*The areas of training needs for the participant and his colleagues to increase the competencies in managing WM services are **Project Management** (15.1%), **IT tools in managing water** (14.9%), **Wastewater treatment technology and effluent management** (12.9%).*

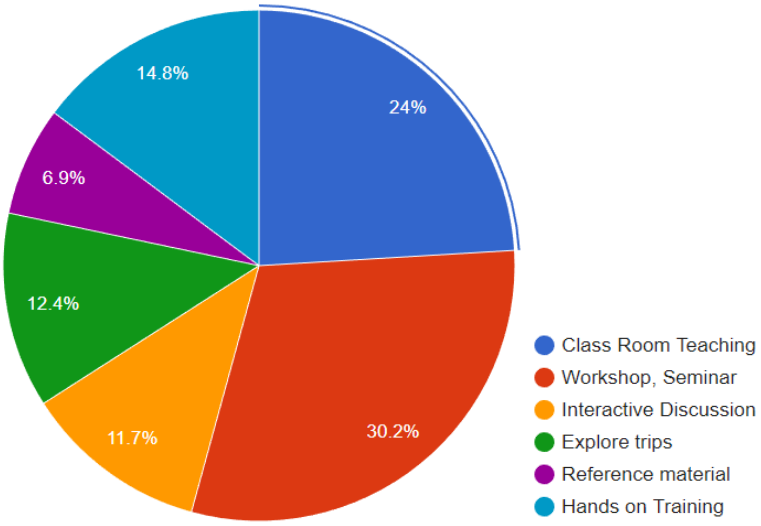
- Have you or any one of your colleagues received training on the subject of WM? If yes, please provide details.



- Please suggest the duration of training for your group. Please tick appropriate.

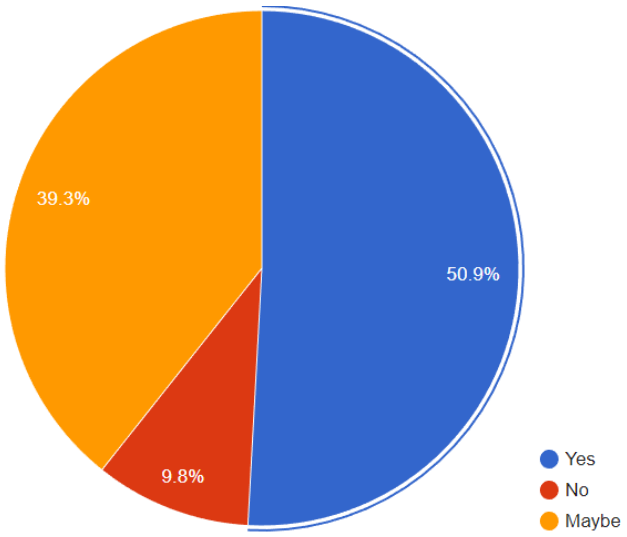


- What is your preferred mode of training? You may tick more than one.



35.8% are willing to have two to ***three days*** *training, and 22.5% are willing to attend* ***one day*** *training, and majority of them (54,2%) would prefer* ***class room*** *or* ***workshops****.*

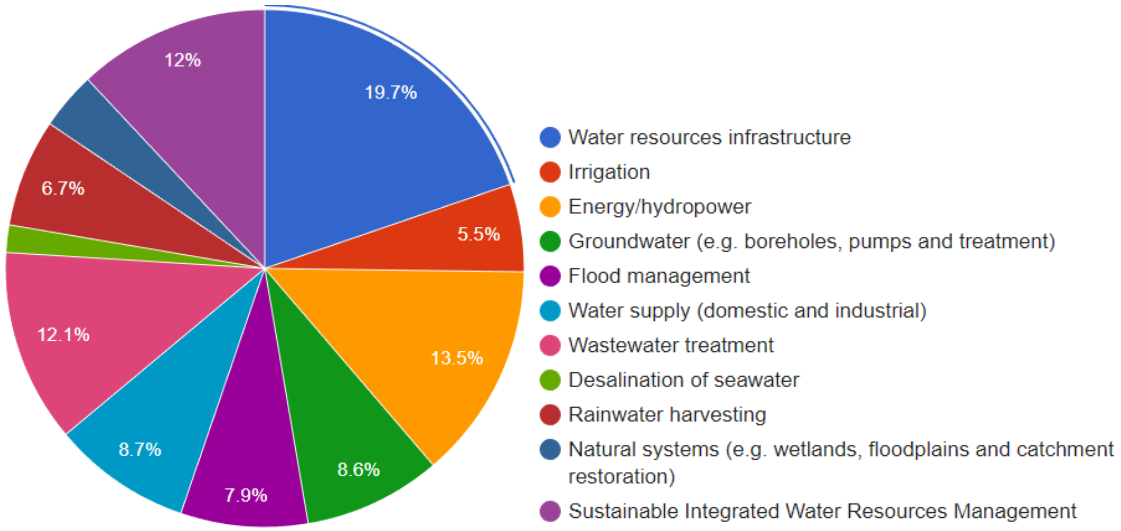
- Are you willing to go to a certified training institution for receiving training on the identified areas of improvements for WM?



50.9% of the respondents are willing to go to a certified training institution for receiving training on the identified areas of improvements for WM.

Fifth group of questions: Technical Training

- Indicate your preferable technical training. You may tick more than one.



*Most common answers are: **Water resource infrastructure** (19.7%), **Energy/Hydropower** (13.5%) and **Wastewater treatment** (12.1%).*

3.4.2 Survey conclusion

This questionnaire is about analyzed of water sector needs for LLL courses on the Dzemal Bijedic University of Mostar. In total 173 questionnaires are responded. The questions were divided into five groups. In the following they are briefly analyzed.

1. General data resulted in 173 questionnaires responded

2. Half of the respondents (53.8%) are in the group whose work is related to water resources management up to 20% of the total working hours. About 34.1% respondents devote up to 60% of working hours to this topic, only 6.9% respondents devote 100% of working hours.

28.6% of respondents are responsible for Tehnical & Engineering Aspects, as far as other areas they have equal distribution of human resources.

3. More than half (52%) of the respondents are partially aware of the instruments for Water Resources Management on European, National and Regional Water Law. About 15% are fully aware about all three instruments for WRM.

More than half (52%) of the respondents are fully or partially aware of the other national instruments that may incorporate Water Resources Management.

About one third (35%) of participants have a fair level of compliance in the organization as regards to various actions, and about quarter (25%) of participants have a good level of compliance. 10% of the respondents have very good level of compliance for above listed actions.

4. The answers for respondent and colleague are quite similar. The highest percentage of responses for score 5 has the question “Communication skills” for respondent of 22%, and for colleague “Computer Applications” of 19.7%. Score 4 is highest for question “Communication skills” of 26% for respondent and 29.5% for colleague. “Institutional aspects” question has the highest percentage of score 3 for respondent and “Training & Capacity Building” for colleague of 28.3%. Score 2 has a maximum of 31.2% (respondent) for question “Training & Capacity Building” and 27.7% (colleague) has three questions. Score 1 is equal for both respondent and colleague for question “Budgeting & Costing for WRM” of 24.3%.

The areas of training needs for the participant and his colleagues to increase the competencies in managing WM services are Project Management (15.1%), IT tools in managing water (14.9%), Wastewater treatment technology and effluent management (12.9%).

35.8% are willing to have two to three days training, and 22.5% are willing to attend one day training, and majority of them (54,2%) would prefer class room or workshops.

50.9% of the respondents are willing to go to a certified training institution for receiving training on the identified areas of improvements for WM.

5. Most common answers are: Water resource infrastructure (19.7%), Energy/Hydropower (13.5%) and Wastewater treatment (12.1%).

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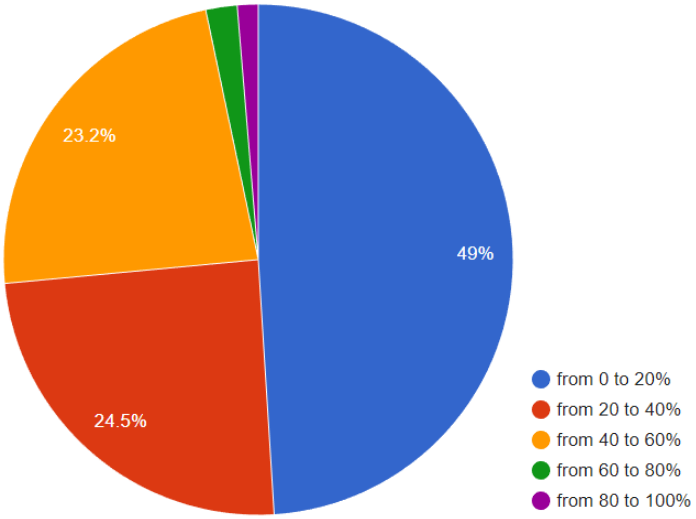
3.5.1 Survey results

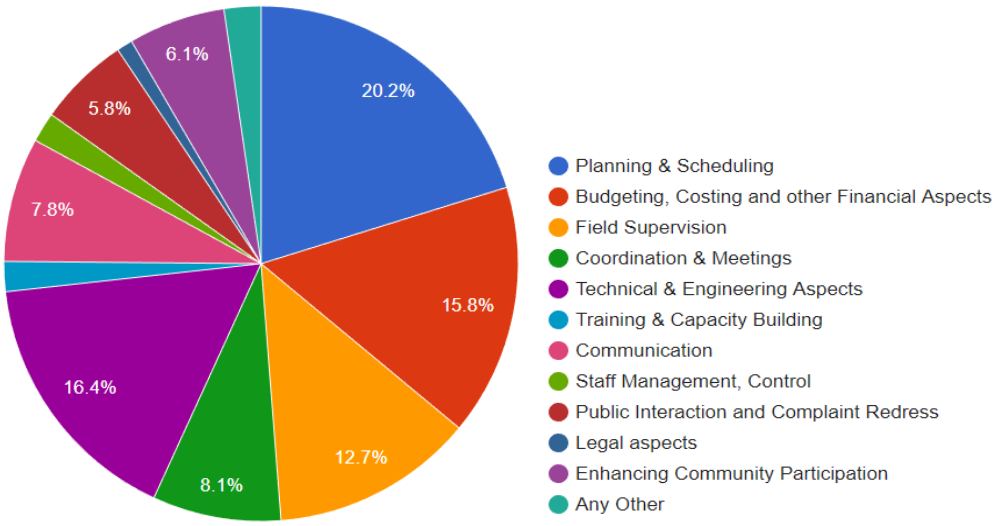
Second group of questions: Job Responsibilities as regards to Water Management in the organization

- In your present position, how much time do you devote for carrying work related to Water Resources Management?



In the relatively small area UPKM covered by this survey, the most of the participants (49%) dedicate less than 20% of their time in the water management sector, 24.5% of the participants are 20-40% focused on the water problems, as shown in the chart above. A moderate response (from 40 to 60% of their time) was selected by 23.2% of respondents. A small number of respondent dedicate 60-100% of their time for Water Resources Management (2% and 1.3% respectively)..

- In your present position, what are your responsibilities for Water Resources Management? You may tick more than one.

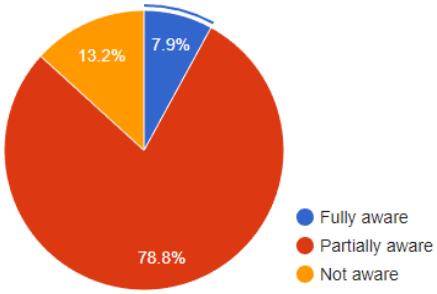


*This chart shows that the actions of **planning and scheduling**, **budgeting** and **technical and engineering aspects** are mostly done in this area (50%), as internal actions within the regional and local water companies and local administration. On the other hand, the **communication** with the citizens, **training**, **capacity building**, **public interactions and complaint redress**, as external affairs of the governing bodies and water management companies are addressed in smaller portions from 1.0-7.8%.*

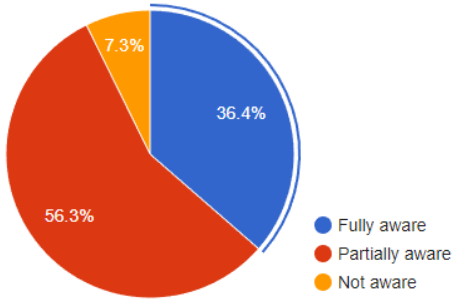
Third group of questions: Awareness, Knowledge to Water Resources Management Policy

- How aware are you of the instruments for Water Resources Management?

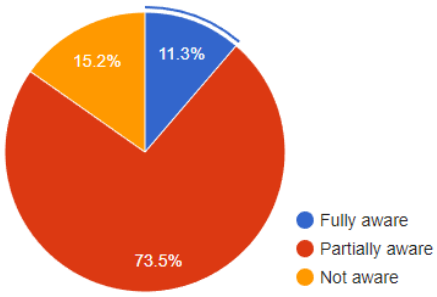
  — EU Water Law, Policy or Strategic Plan



  — National Water Law, Policy or Strategic Plan



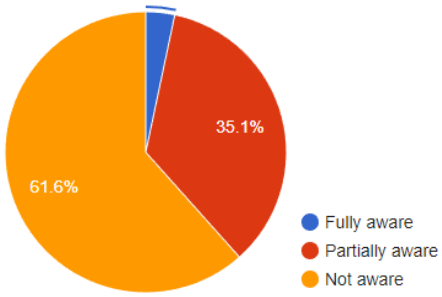
  — Regional Water Law, Policy or Strategic Plan



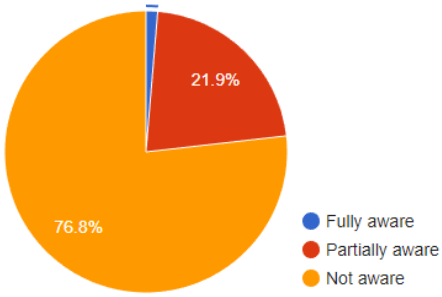
*As shown in the charts, it can be seen that there is the highest awareness of **National Water Law, Policy or Strategic Plan**, then comes the **Regional Water Law, Policy or Strategic Plan** and finally **EU Water Framework Directive and EU policy on water**.*

- Are you aware of the other national instruments that may incorporate Water Resources Management?

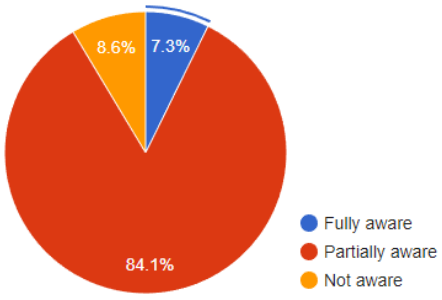
— Integrated national policy/strategy/plan for land and water resources management



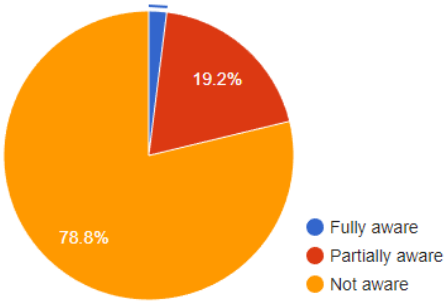
— Poverty Reduction Strategy (PRS) with water resources management component



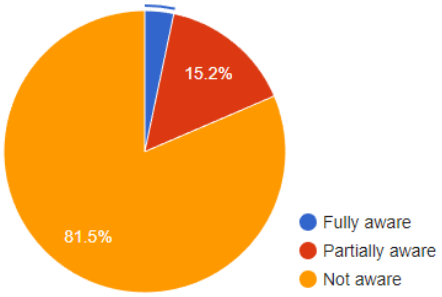
— National Strategy for Sustainable Development



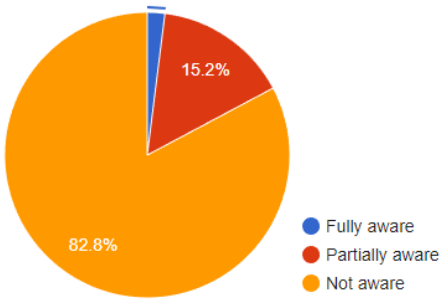
— National Development Plan with water resources management component



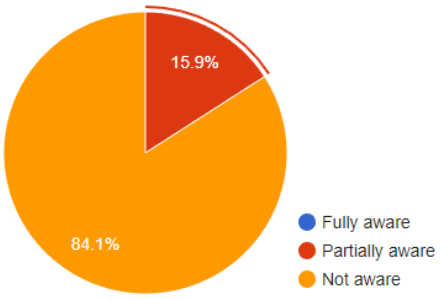
— National Environmental Action Plan water resources management component



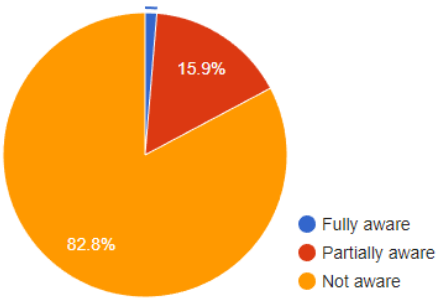
— National climate change adaptation policy/strategy/plan with water resources management component



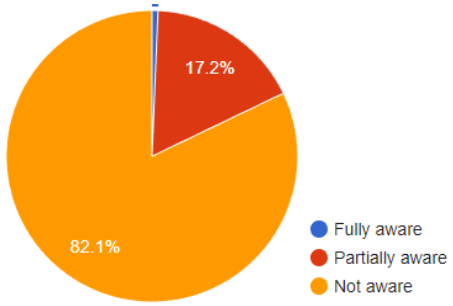
— National Agricultural Plan with water resources management component



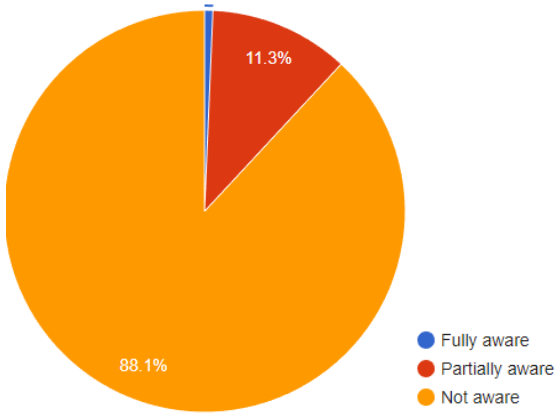
— National energy policy/strategy/plan with water resources management component



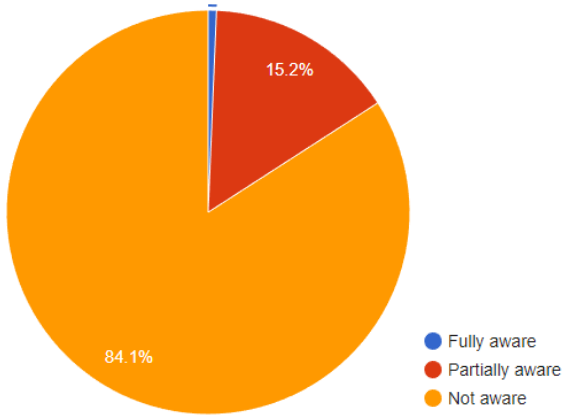
— National desertification policy/strategy/plan with water resources management component



— National wetland policy/strategy/plan with water resources management component



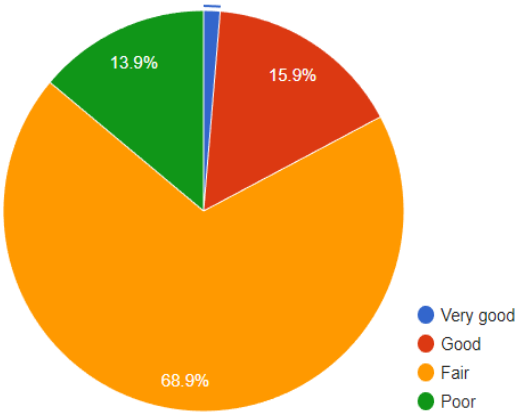
— National biodiversity policy/strategy/plan with water resources management component



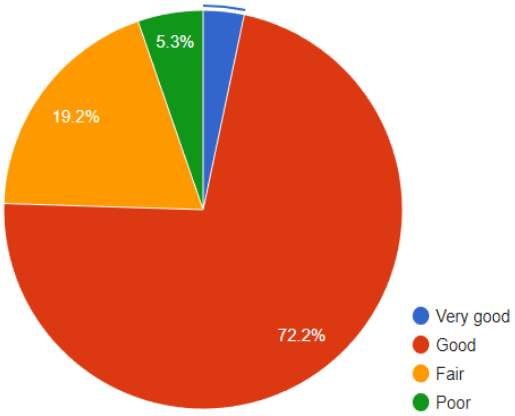
According to the results, the participants showed partial awareness (35.1%) of ***Integrated national policy/strategy/plan for land and water resources management****, of* ***Poverty Reduction Strategy*** *(21.9%), of* ***National Development Plan*** *and* ***National Environmental Action Plan*** *(19.2% and 15.2%). The highest awareness was obtained for the* ***National Strategy for Sustainable Development*** *with 84.1% of partially awareness and 7.3% fully aware participants.* ***National Energy Policy***, ***National Wetland Policy***, ***National Desertification Policy*** *and* ***National biodiversity Policy*** *were similar with approximately 15% of participants partially aware and almost none fully aware of them.*

- According to you, what is the level of compliance in your organization as regards to various actions described in the table below? Please tick, as you feel appropriate.

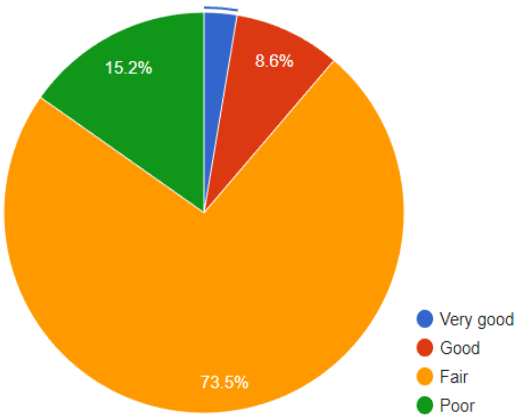
— Groundwater management program



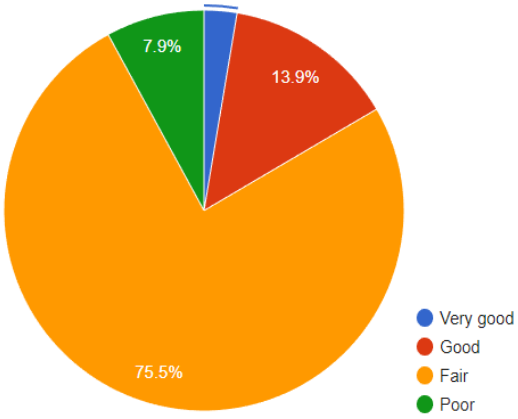
— Surface management program



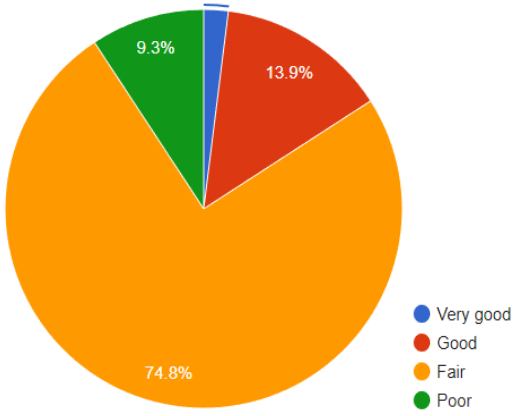
— Linked ground and surface water management program



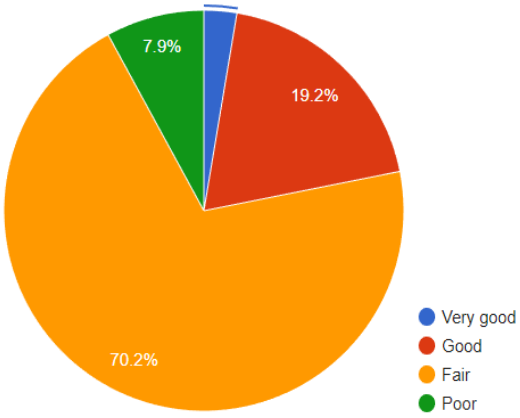
— Programs for efficient allocation of water resources among competing uses



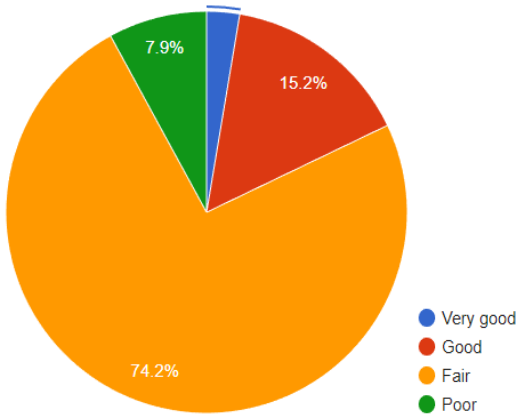
— Land/natural resources management programs that include water resources management components



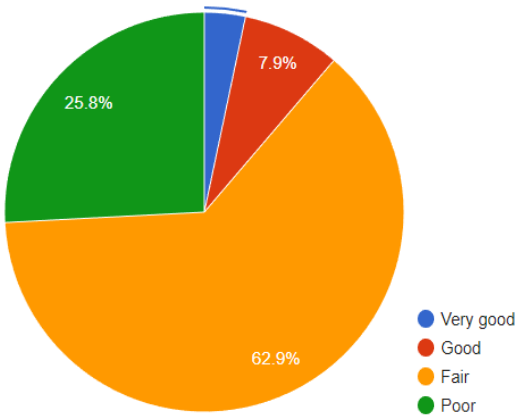
— Programs for allocating water resources that include environmental considerations



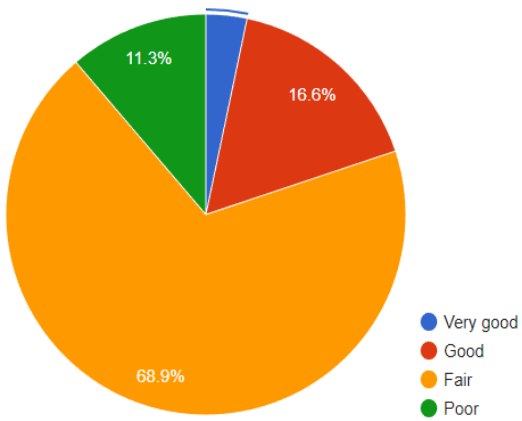
— Demand management measures to improve water use efficiency in all sectors



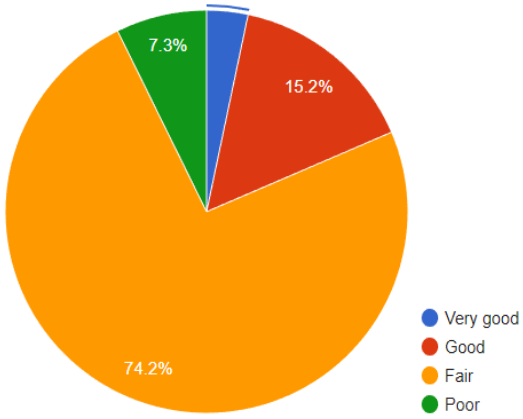
— Program for re-use or recycling of water



— Programs to evaluate environmental impacts of water projects



— Programs to address water-related disasters (e.g. floods and droughts)

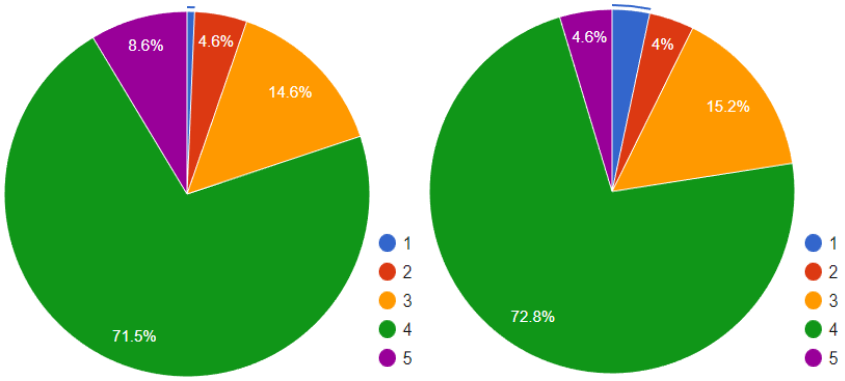


The most of the organizations were in good compliance with the ***surface management programme*** *72.2%, and just a few organization are dealing with* ***ground waters****, 15.9% of them are in a good compliance with the* ***ground waters management programme****. Just 8.6% of them are in a good compliance with the* ***linked ground and surface water management program****, and 13.9% with* ***Programs for efficient allocation of water resources****.* ***Program for reuse or recycling of water*** *had the poorest results, with 25.8% of poor compliance with the* ***organization in charge****.*

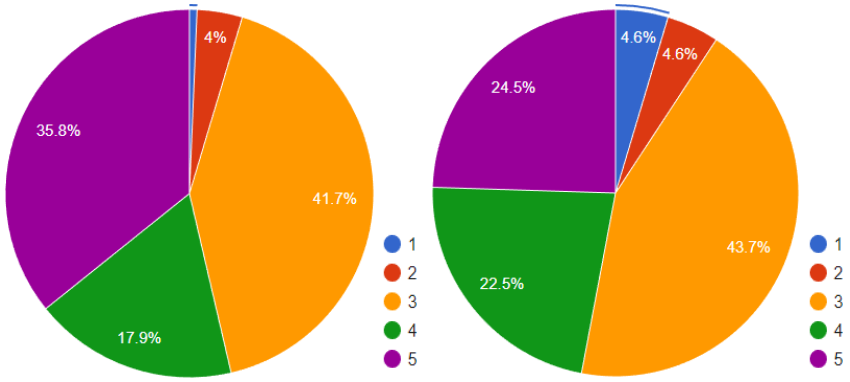
Fourth group of questions: Training Need

- Please read each of the abilities carefully and rate yourself and your colleagues on the same on the basis of five point rating scale. (Five is the highest and one is lowest)

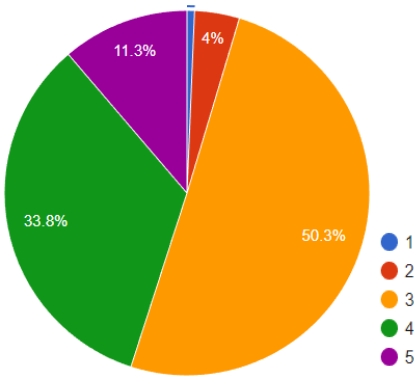
Understanding WRM procedures (self/colleague)

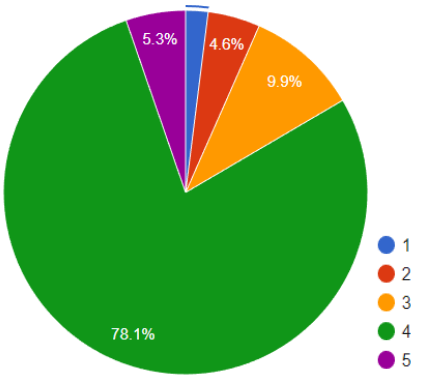


Technical & Engineering aspects (self/colleague)

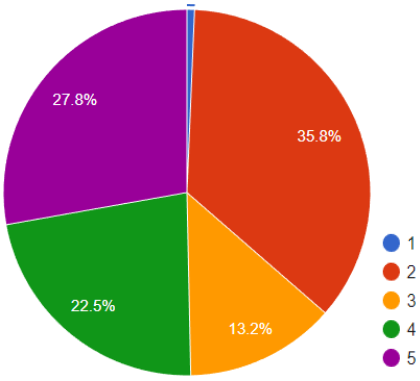


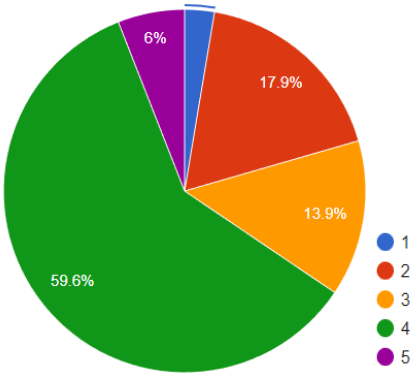
Institutional aspects (self/colleague)



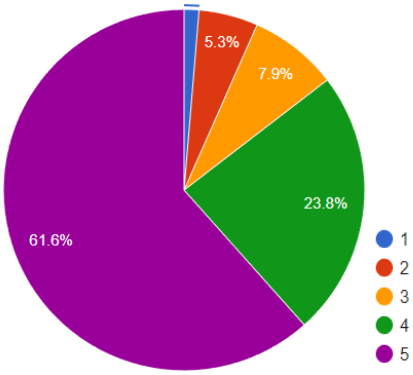


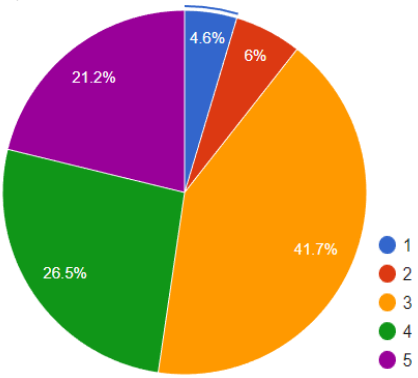
Supervision and Coordination (self/colleague)



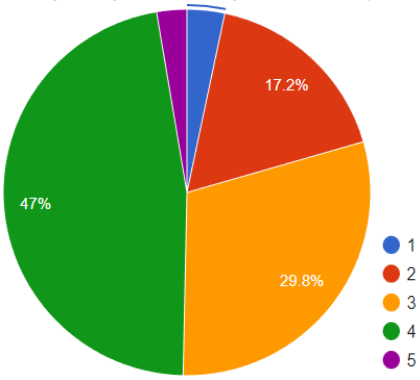


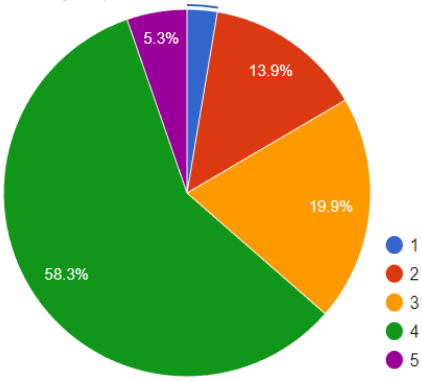
Computer Applications (self/colleague)



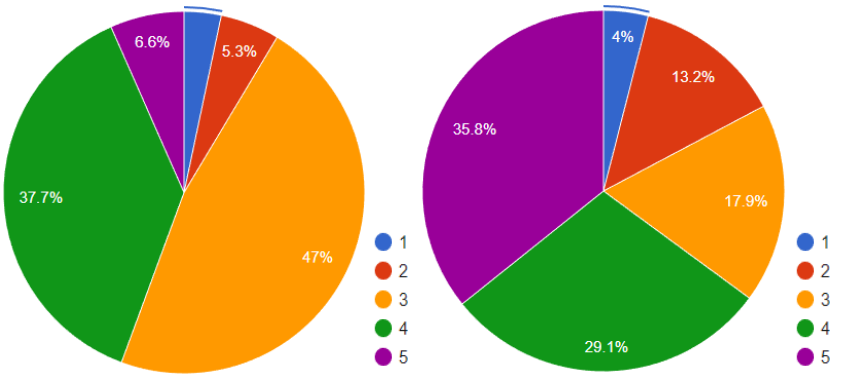


Budgeting & Costing for WRM (self/colleague)

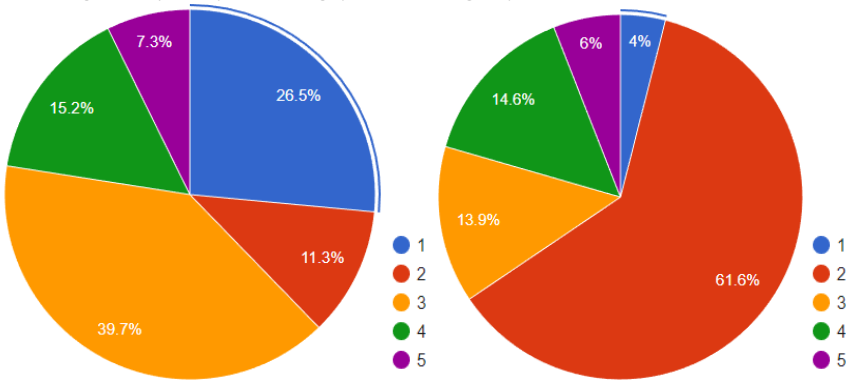




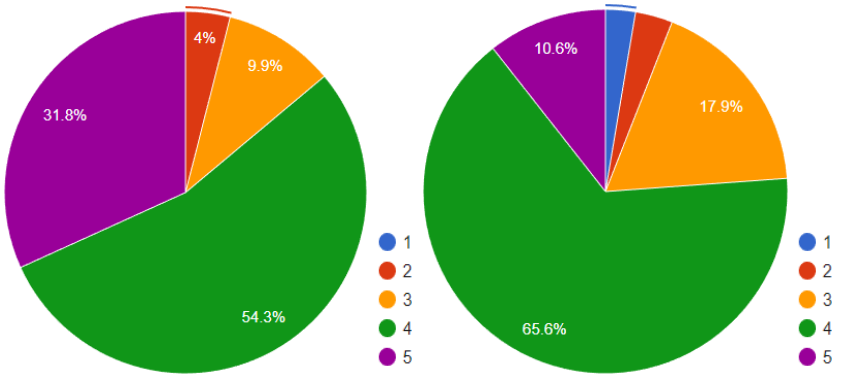
Contracting mechanisms (self/colleague)



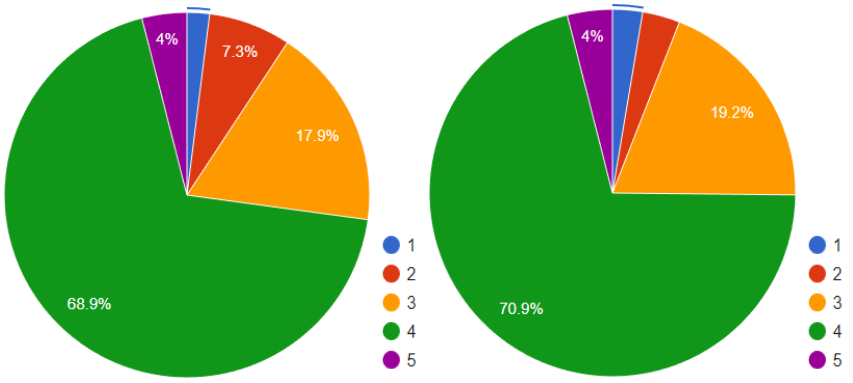
Training & Capacity Building (self/colleague)



Communication Skills (self/colleague)

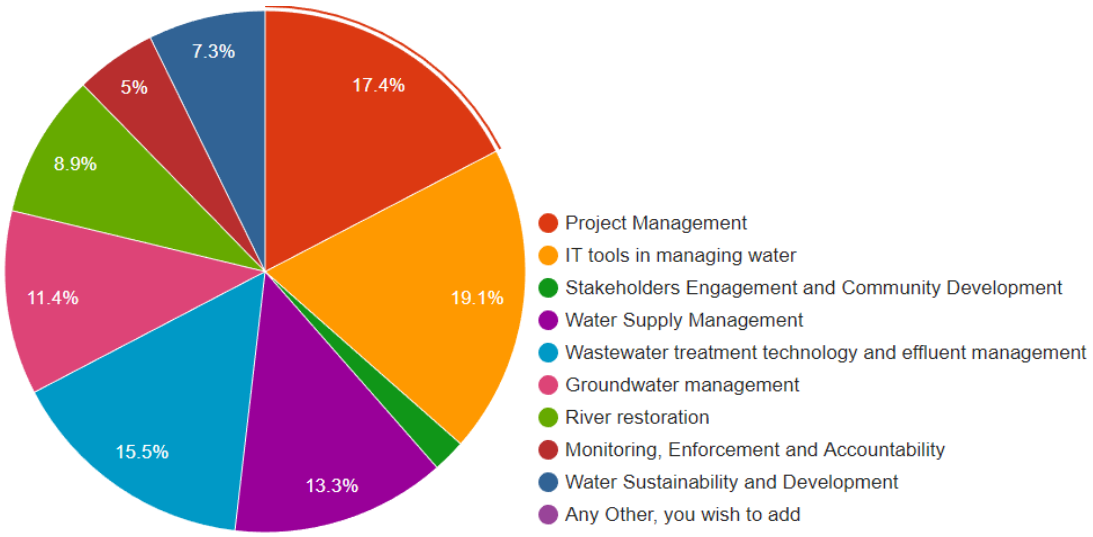


Integrated water resources management (self/colleague)



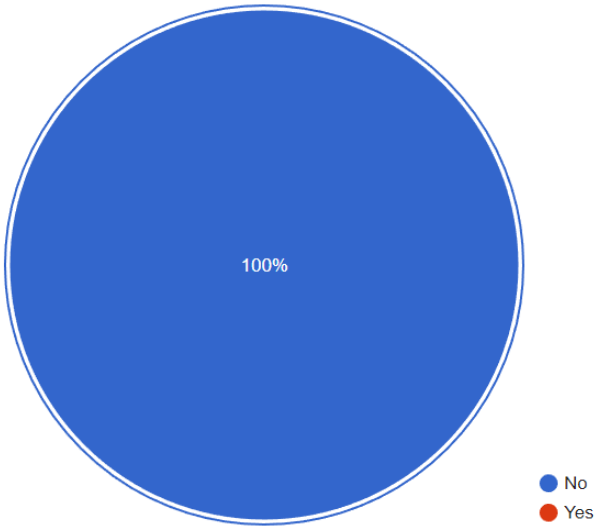
*The best results were obtained in the **engineering aspects** (above 70%), **budgeting and costing** (71.6%), **supervision** and **coordination of the colleagues** (78.1%), **communication skills** (65.6%) and **integrated water management** from 68.9 to 70.9%.*

- Please indicate the areas of training needs for you and colleagues in your category to increase the competencies in managing WM services. You may tick more than one.



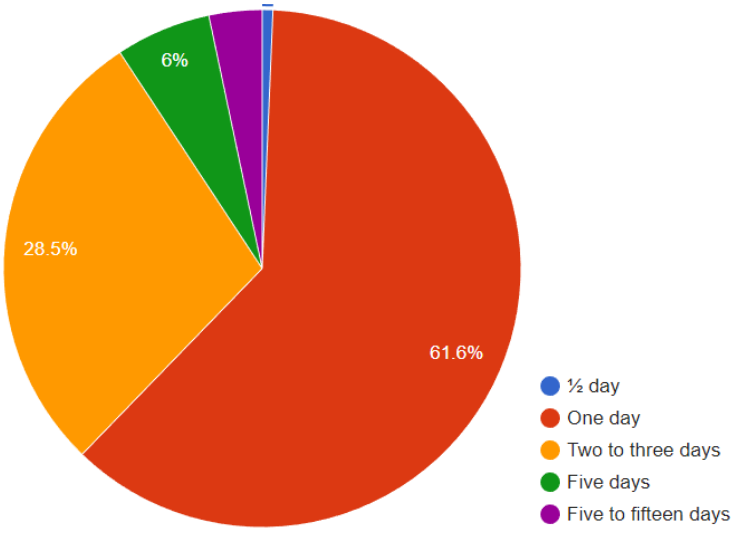
The most wanted training was in ***IT tools application*** *(19.1%). Second most needed was* ***Project Management*** *(17.4%),* ***Wastewater treatment technology*** *(15.5%) and* ***water supply management*** *(13.3%).* ***Stakeholders engagement and Community Development*** *training was the least wanted course.*

- Have you or any one of your colleagues received training on the subject of WM? If yes, please provide details.



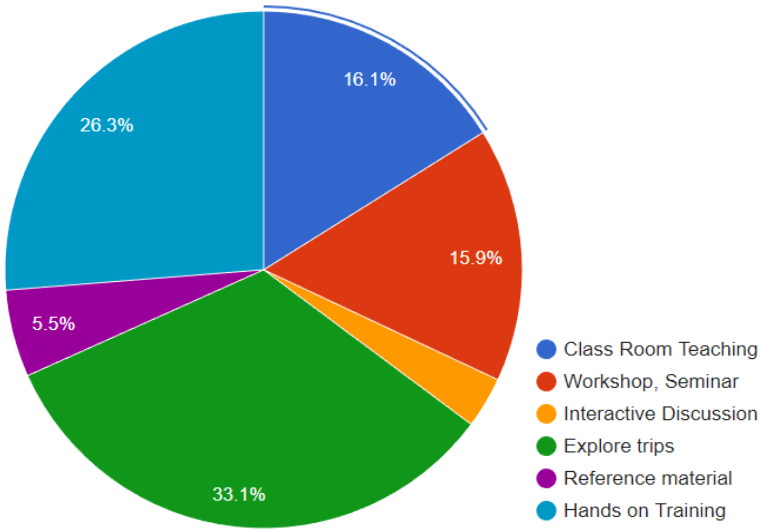
There were no participants who have attended any training in Water Management, as shown in the chart above.

- Please suggest the duration of training for your group. Please tick appropriate.



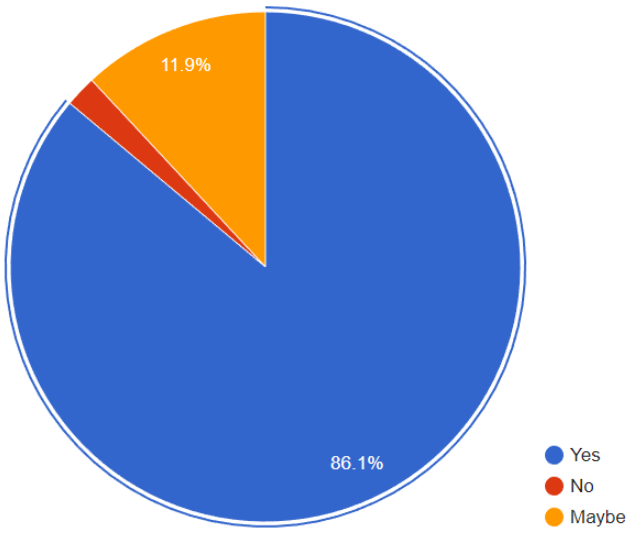
*The most of the participants were comfortable with **one day** training (61.6%), but 28.5% were ready to have **two or three** days of training.*

- What is your preferred mode of training? You may tick more than one.



*The participants would like to have some **study visits** of **field trips** (33.1%) than **hands on training** (26.3%) and **classroom teaching** (16.1%) and **workshops** (15.9%).*

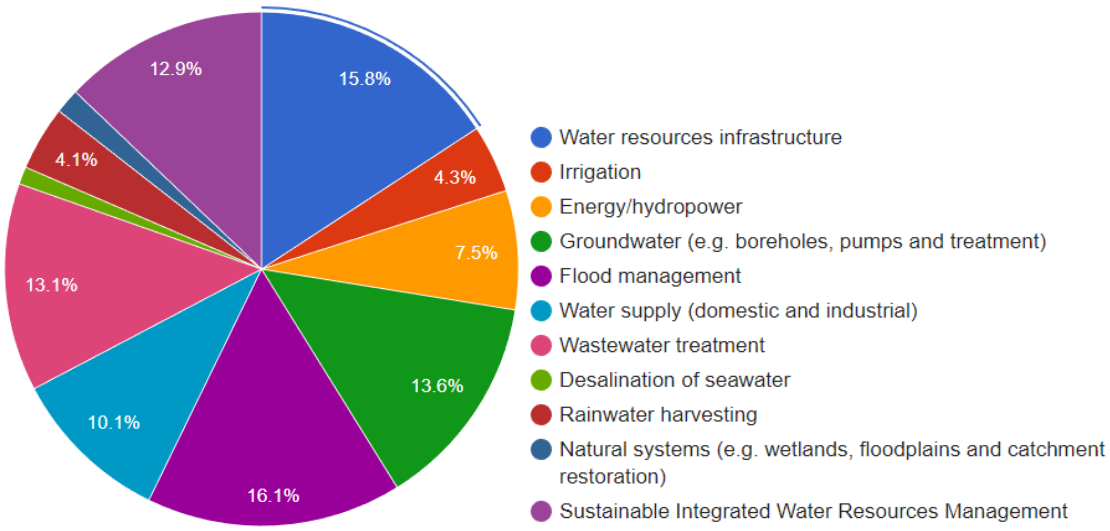
- Are you willing to go to a certified training institution for receiving training on the identified areas of improvements for WM?



The participants are ready to go to the certified training institution, 86.1%.

Fifth group of questions: Technical Training

- Indicate your preferable technical training. You may tick more than one.



*The participants were interested into **water resources infrastructure** (15.8%), **Flood management** (16.1%), **wastewater treatment** (13.1%), and **groundwater** (13.6%).*

3.5.2 Survey conclusion

The first set of questions about the operations performed in the organizations in the area of water management showed that in the region of North of Kosovo*, there are actions of planning and scheduling, budgeting and technical and engineering in the field of water management within the regional and local water companies and local administration. On the other hand, the communication with the citizens, training, capacity building, public interactions and complaint redress, as external affairs of the governing bodies and water management companies are neglected and addressed in smaller portions from 4.3-8.9%.

When it comes to the awareness of the strategic documents and policies there is the highest awareness of EU Water Framework Directive and EU policy on water, then comes the regional Water Law, Policy or Strategic Plan and finally National strategic documents. It is due to the fact that the process of EU integration is more visible than the national legislation process, and all the projects in the frame of EU Instruments for Pre Assessment are done in compliance with EU legislation.

According to the results, the participants showed some awareness of the integrated national policy/strategy/plan for land and water resources management, National Strategy for Sustainable development, National Development Plan, Poverty Reduction Plan, and National Environmental Action Plan, and less or no awareness of the National Wetland Policy, National Desertification Policy and National biodiversity Policy. The professionals were only fully aware of the National Development Plan with water resources management component.

It can be seen as normal, as the participants in the North of Kosovo* are working on the local level, municipal and regional water management department, and have less contacts with the documents covering the issues not addressing their immediate environment (Wetlands, Desertification,...).

The level of compliance of the organization with the actions from Water management is the best in surface water management, and just one organization in the study area is dealing with ground waters. The fact that the Program for reuse or recycling of water had the poorest results means that the professionals are aware of the program's importance and the need for improvement in that field.

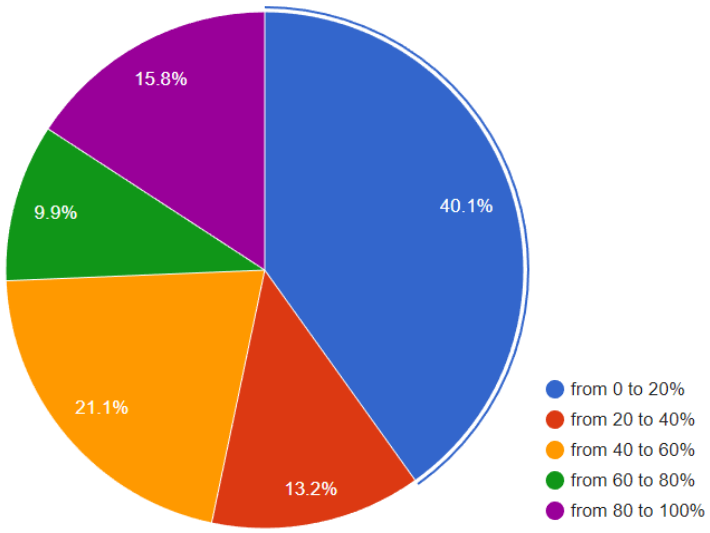
In the personal evaluation part, the best results were obtained in the engineering aspects, meaning that the most of the participants were engineers or technicians, who at the same time are also in charge for supervision and coordination as department managers. They need IT tools application training, Project management, Water supply and Waste water management, and are reluctant toward Stakeholders engagement and Community Development trainings. They will attend one day trainings in the accredited institution, in the form of field trips, workshops and hands on trainings in the water resources infrastructure, Flood management, Wastewater treatment and groundwater.

3.6 P12 - Technical College of Applied Sciences Urosevac with temporary seat in Leposavic - TCASU

3.6.1 Survey results

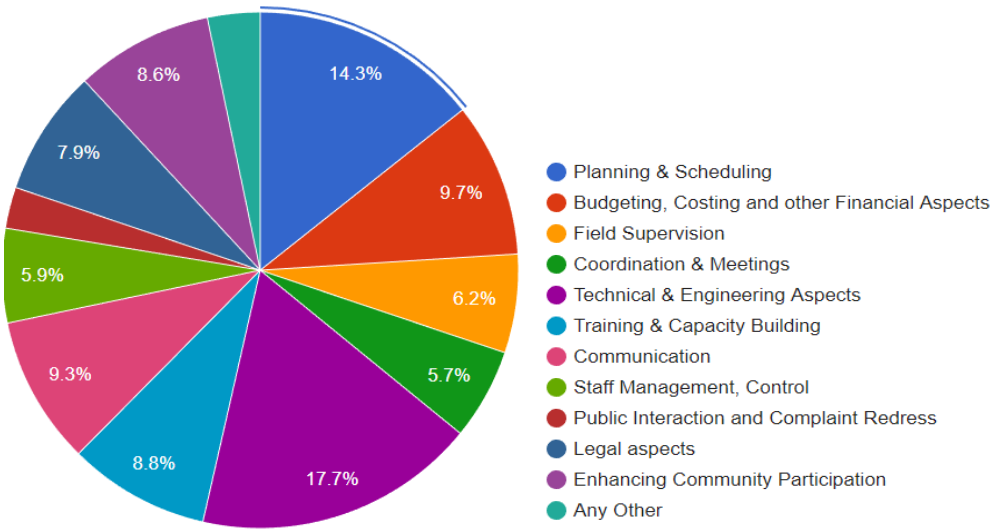
Second group of questions: Job Responsibilities as regards to Water Management in the organization

- In your present position, how much time do you devote for carrying work related to Water Resources Management?



As we may see from the Chart, 40.1% respondents stated to spend 0-20% of time for carrying work related to Water Resources Management; 15.8% participants stated to devote 80-100% to this activity.

- In your present position, what are your responsibilities for Water Resources Management? You may tick more than one.



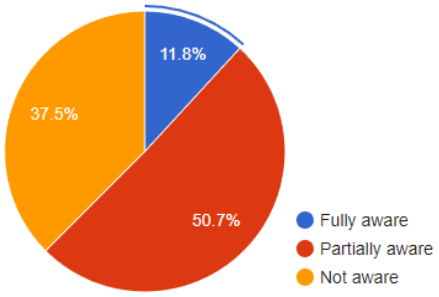
When it comes to responsibilities for Water Resources Management, 9.3% and 8.6% answered to have responsibilities related to ***Communication and Enhancing Community Participation****,*

respectively. 14.3% respondents are responsible for ***Planning and Scheduling****, while* ***Technical & Engineering Aspects*** *are in favour for 17.7% of respondents.*

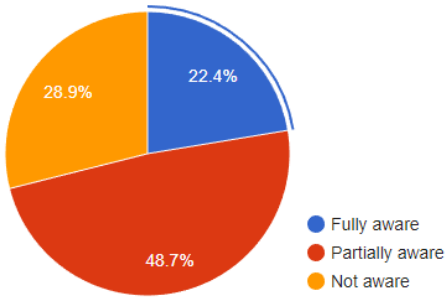
Third group of questions: Awareness, Knowledge to o Resources Management Policy

- How aware are you of the instruments for Water Resources Management?

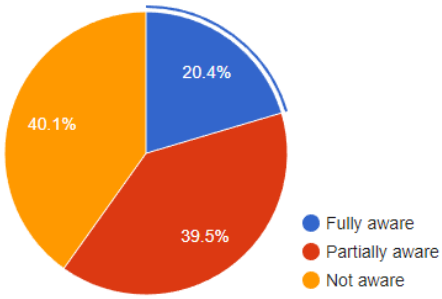
  — EU Water Law, Policy or Strategic Plan



  — National Water Law, Policy or Strategic Plan



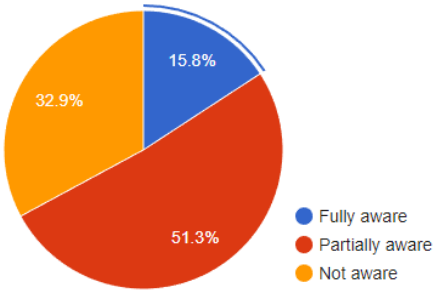
  — Regional Water Law, Policy or Strategic Plan



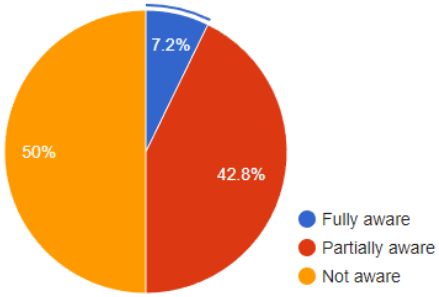
The results show that very small percent of the respondents is familiar with the instruments for Water Resources Management. 11.8% of the respondents sated that are ***fully aware*** *of* ***EU Water Law, Policy or Strategic Plan****, 50.7% are* ***partially aware****, and 37.5% are* ***not aware****. When it comes to* ***National Water Law, Policy or Strategic Plan*** *28.9% of are* ***not aware*** *and 48.7% are* ***partially aware****; only 22.4% are* ***fully aware*** *of National Water Law, Policy or Strategic Plan.* ***Regional Water Law, Policy or Strategic Plan*** *is known to 20.4% respondents who are* ***fully aware*** *of the same, 39.5% are* ***partially aware*** *and 40.1% are* ***not aware*** *of Regional Water Law, Policy or Strategic Plan.*

- Are you aware of the other national instruments that may incorporate Water Resources Management?

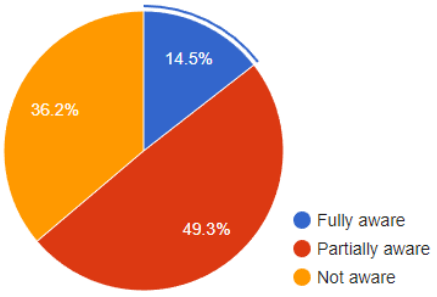
— Integrated national policy/strategy/plan for land and water resources management



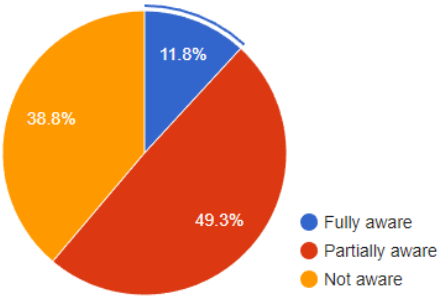
— Poverty Reduction Strategy (PRS) with water resources management component



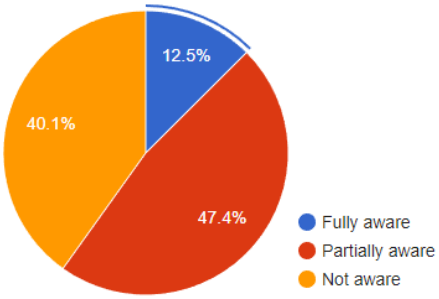
— National Strategy for Sustainable Development



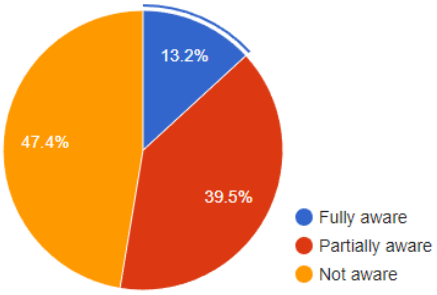
— National Development Plan with water resources management component



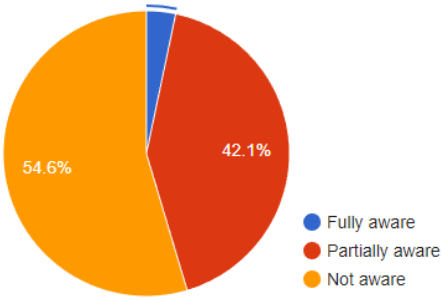
— National Environmental Action Plan water resources management component



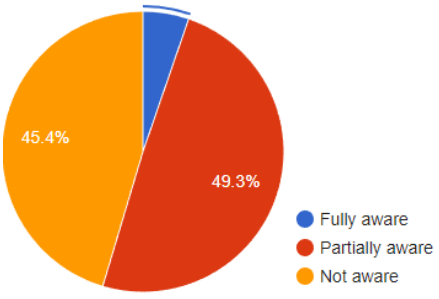
— National climate change adaptation policy/strategy/plan with water resources management component



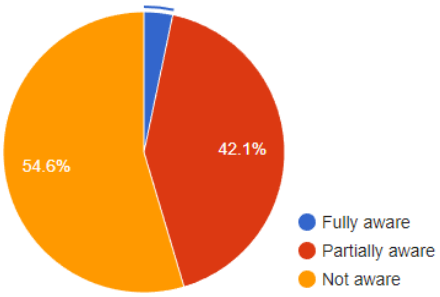
— National Agricultural Plan with water resources management component



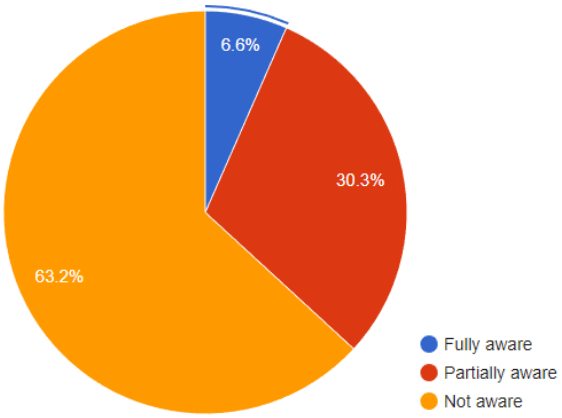
— National energy policy/strategy/plan with water resources management component



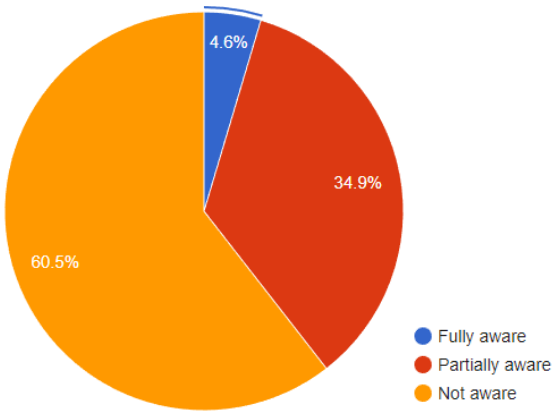
— National desertification policy/strategy/plan with water resources management component



— National wetland policy/strategy/plan with water resources management component



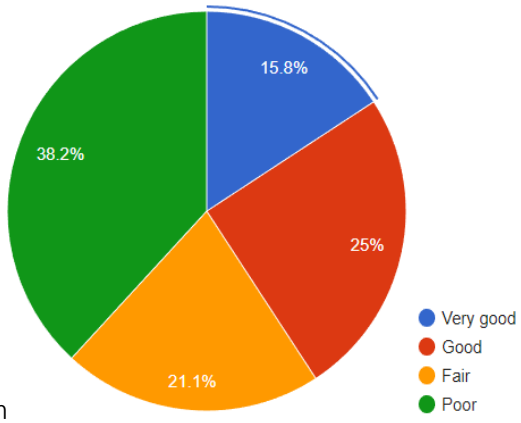
— National biodiversity policy/strategy/plan with water resources management component



The questions regarding the awareness of the other national instruments that may incorporate Water Resources Management provided almost identical answers. Majority of respondents, 33-63%, are not familiar with any of the attitudes of national instruments. Only small percent of the respondents are fully aware, and 30.3% to 51.3% is a range of those who are those who are partially aware with some of the instruments, whereas the majority is familiar with Integrated national policy/strategy/plan for land and water resources management.

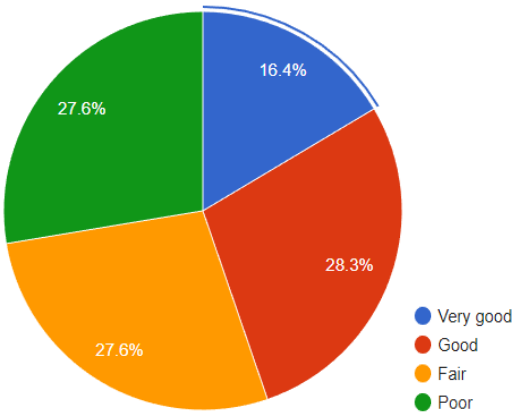
- According to you, what is the level of compliance in your organization as regards to various actions described in the table below? Please tick, as you feel appropriate.

From the results obtained we may see that majority of the respondents are not satisfied with the actions regarding the water management at the organizational level. 38.2% are not satisfied with the Ground management program at all; 16.4% of the respondents thinks that that there is a good compliance with Surface management program. Only 12.5% of respondents thinks that there is a good compliance with Linked ground and surface water management program, while 40.1% thinks that there is fair compliance with Programs for efficient allocation of water resources among competing users, in this case only 9.9% of the respondents thinks that compliance is good. Land/natural resources management programs that include water resources management components is poor according to 30.3% of the respondents, and 23.7% thinks it is good. Programs for allocating water resources that include environmental considerations has a poor organization compliance according to 31.6% respondents, while 30.3% feels it is fair and 8.6% thinks it is very good. Results for Demand management measures to improve water use efficiency in all sectors, reveals that 30.9% of the respondents do not think that the compliance it at the satisfactory level. The same is the percent of those who think it is good, and 6.6 % of the respondents thinks it is very good. Program for re-use or recycling of water is also at unsatisfactory level, based on 44.1% respondents. Programs to evaluate environmental impacts of water projects and Programs to address water-related disasters (e.g. floods and droughts) according to participants are actions with good priority, accounting for 30.9% and 21.1%, respectively.

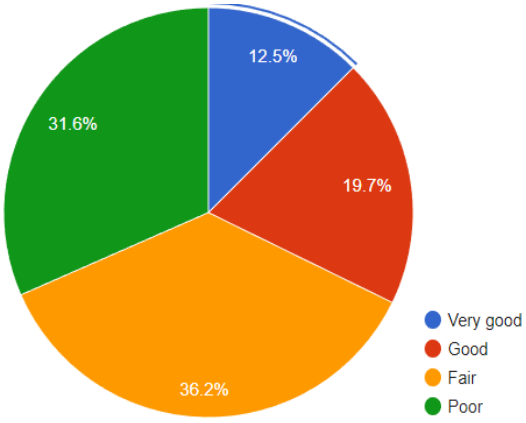


Groundwater management program

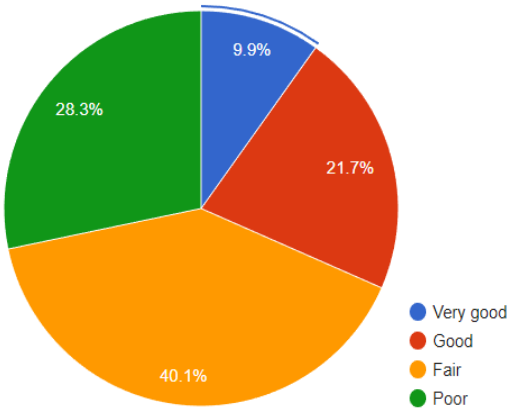
— Surface management program



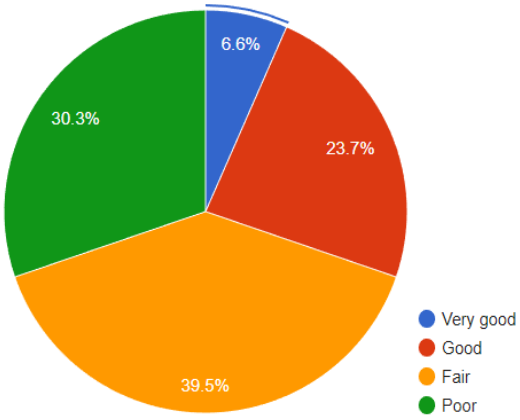
— Linked ground and surface water management program



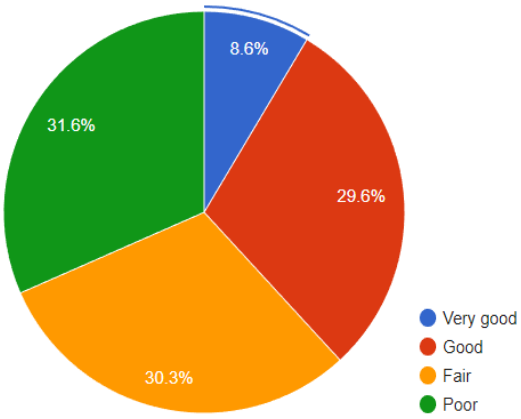
— Programs for efficient allocation of water resources among competing uses



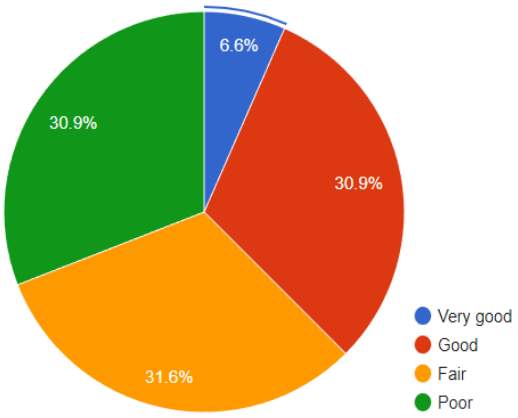
— Land/natural resources management programs that include water resources management components



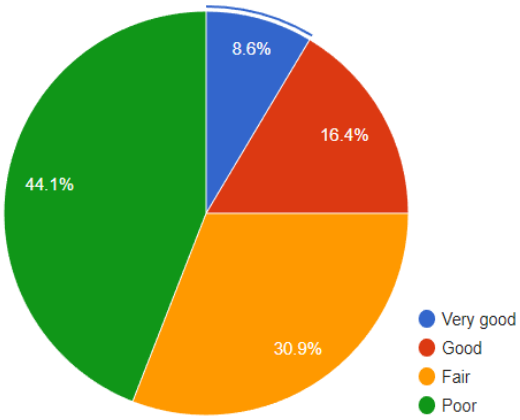
— Programs for allocating water resources that include environmental considerations



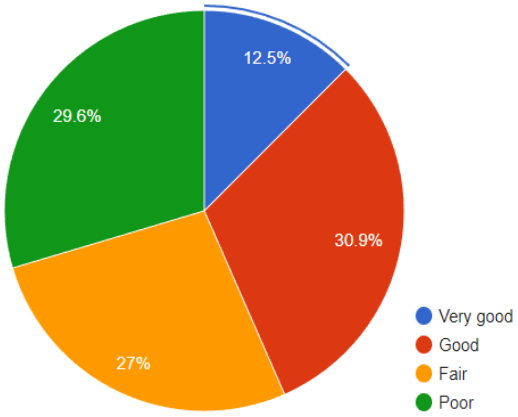
— Demand management measures to improve water use efficiency in all sectors



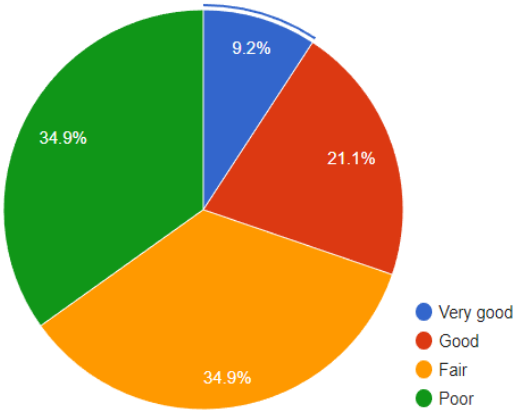
— Program for re-use or recycling of water



— Programs to evaluate environmental impacts of water projects



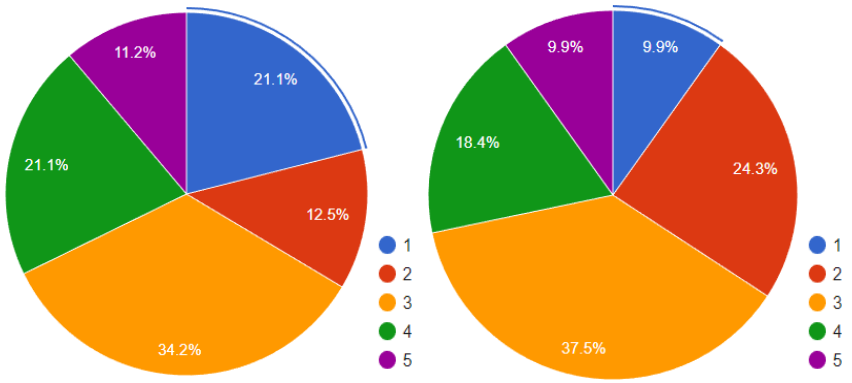
— Programs to address water-related disasters (e.g. floods and droughts)



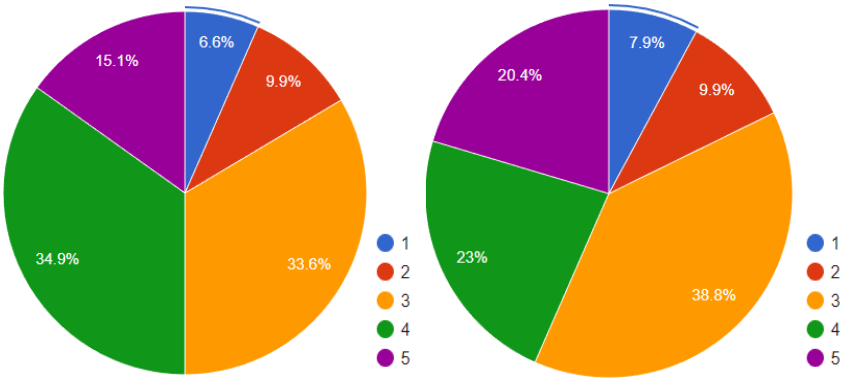
Fourth group of questions: Training Need

- Please read each of the abilities carefully and rate yourself and your colleagues on the same on the basis of five point rating scale. (Five is the highest and one is lowest)

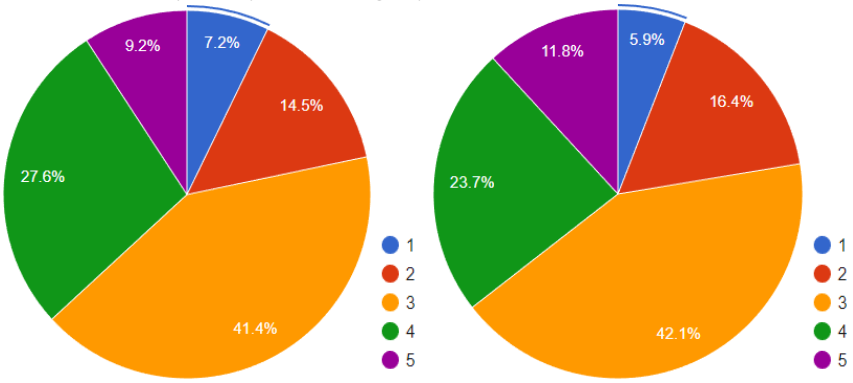
  Understanding WRM procedures (self/colleague)



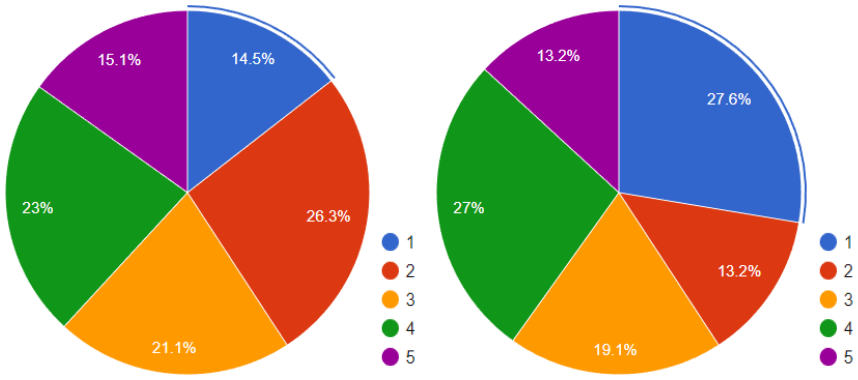
Technical & Engineering aspects (self/colleague)



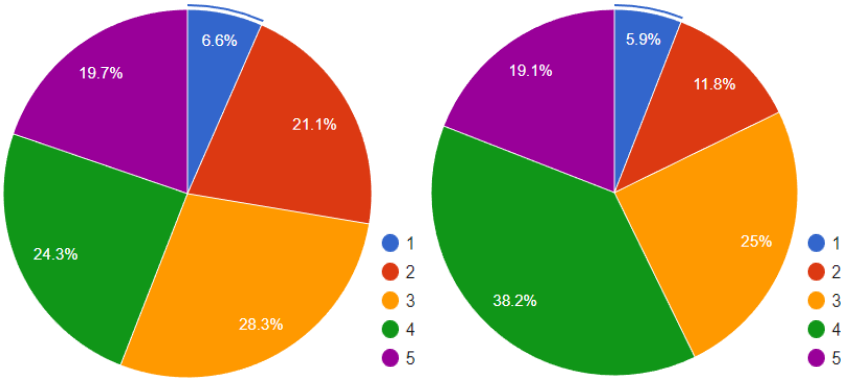
Institutional aspects (self/colleague)



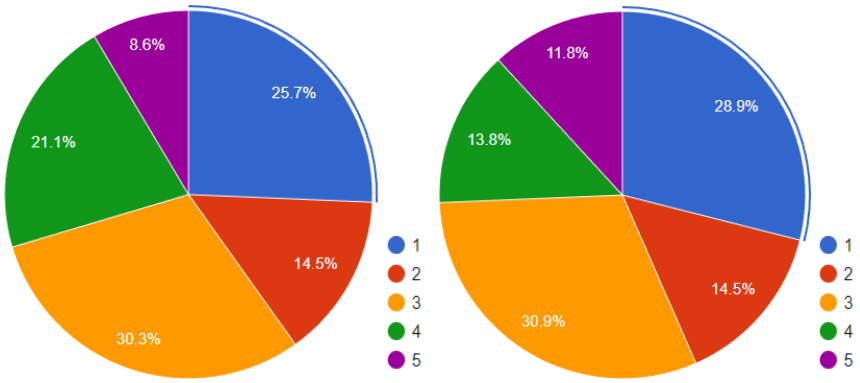
Supervision and Coordination (self/colleague)



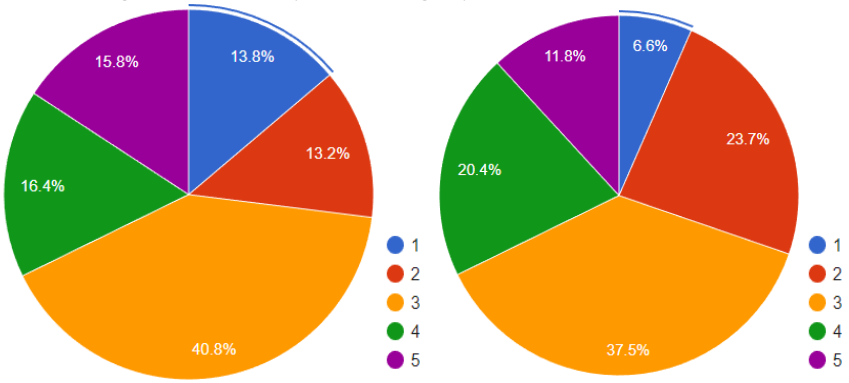
Computer Applications (self/colleague)



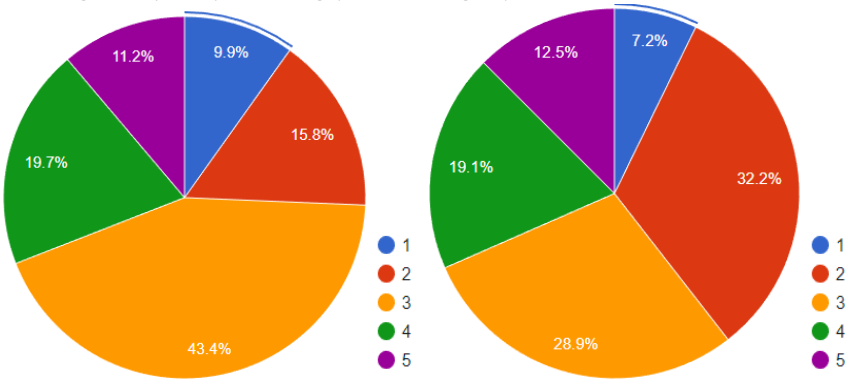
Budgeting & Costing for WRM (self/colleague)



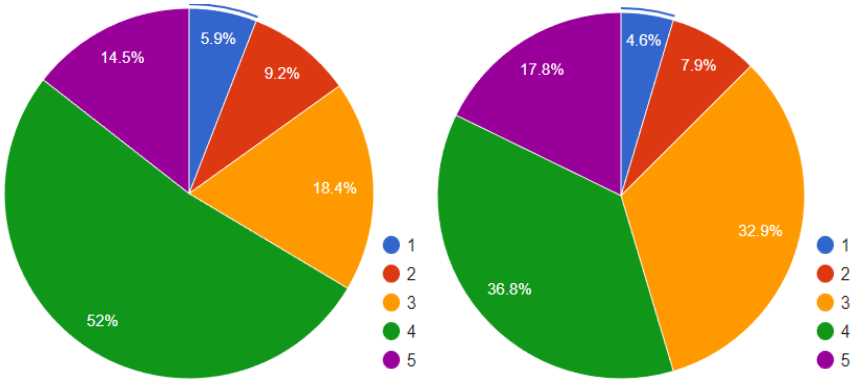
Contracting mechanisms (self/colleague)



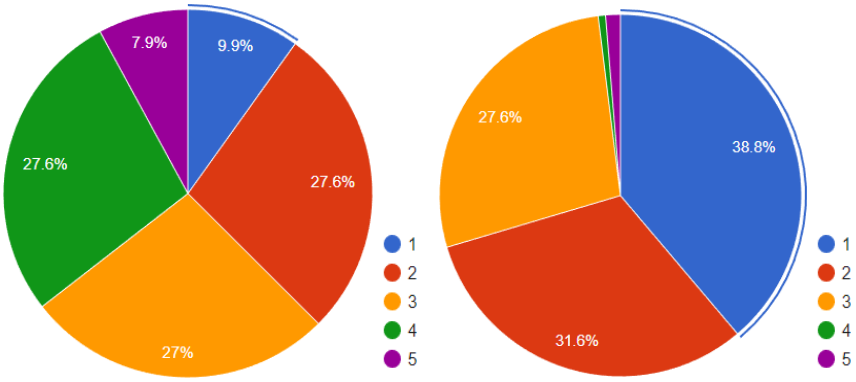
Training & Capacity Building (self/colleague)



Communication Skills (self/colleague)

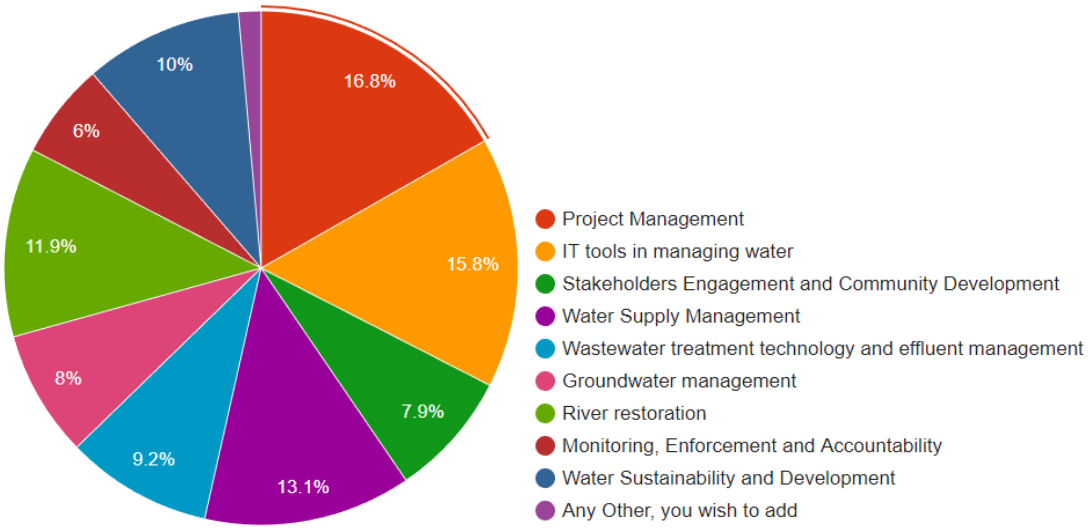


Integrated water resources management (self/colleague)



The analysis of the answers provided by the respondents regarding the training needs and abilities lead to following results: only 34.2% partially understand the WRM procedures compared to 37.5% of their colleagues. Technical & Engineering aspects (self/colleague) are at the satisfactory level, both for respondents and colleagues, 34.9% and 23%, respectively. Respondents are the most confident in with Institutional aspects, 41.4% and 42.1%. Supervision and coordination is top priority to 15.1% of the respondents and 13.2% of colleagues. Computer application of great importance for 24.3% and colleague 38.2%. Budgeting & Costing for WRM accounts 30.3% for the respondents and 30.9% for colleague as fair priority. Communication Skills are important to 52% of the respondents and for 36.8% colleagues. Integrated water resource management is important to 27.6% of the respondents, while is not important at all to 38.8% colleagues.

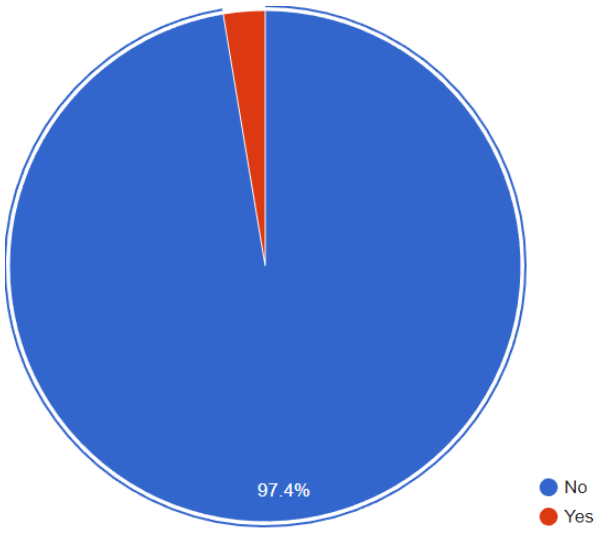
- Please indicate the areas of training needs for you and colleagues in your category to increase the competencies in managing WM services. You may tick more than one.



Based on the analysis regarding the areas of training needs to increase the competencies in managing WM services, the following is obtained: 16.8 % Project Management, 15.8% IT tools in managing water, 13.1% Water Supply Management and 11.9% Stakeholders engagement and community development. As we may see, the slight priority is given to Water Supply Management,

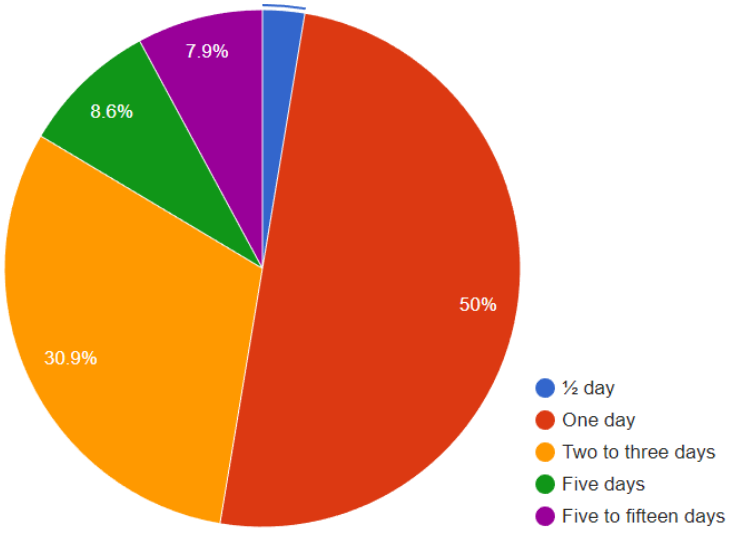
13.1%, compared to other items, while Monitoring, Enforcement and Accountability, Groundwater management and Monitoring, Enforcement and Accountability are at the bottom of the priority.

- Have you or any one of your colleagues received training on the subject of WM? If yes, please provide details.



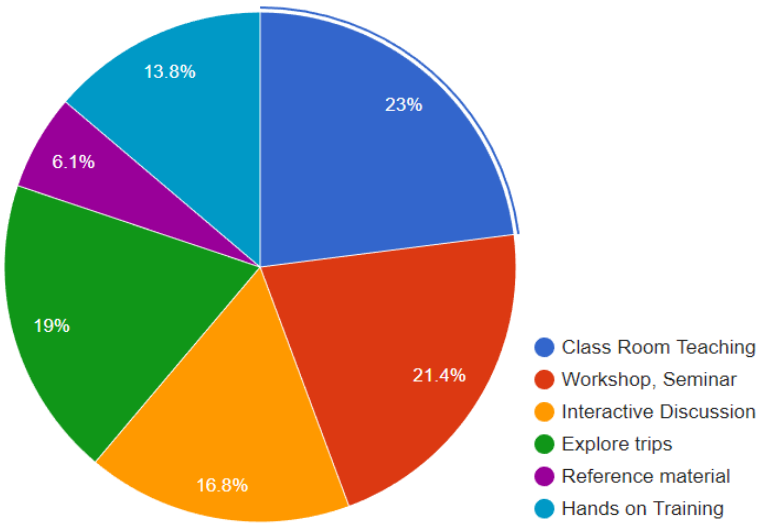
Almost all respondents, 97.4% stated that they have not had any training regarding the WM.

- Please suggest the duration of training for your group. Please tick appropriate.



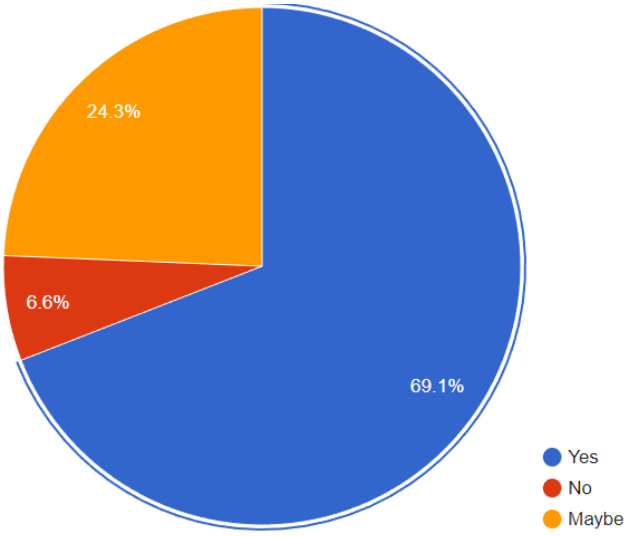
According to the majority of the respondents, the training should last one day.

- What is your preferred mode of training? You may tick more than one.



The preferred mode of training for the majority of the respondents, 23% is interactive classroom teaching 21.4% prefers workshops and seminars. Interactive discussion is suitable for 16.8% of the respondents.

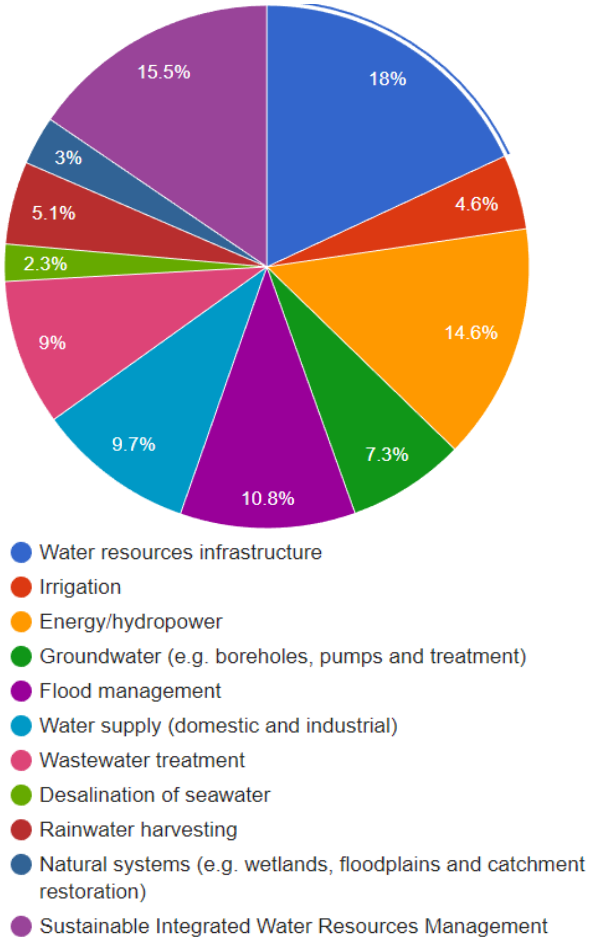
- Are you willing to go to a certified training institution for receiving training on the identified areas of improvements for WM?



69.1% of respondents are willing to go to certified training institutions and to be trained on WM. Only 6.6% gave negative answer.

Fifth group of questions: Technical Training

- Indicate your preferable technical training. You may tick more than one.



Water resource infrastructure is set as priority technical training for the majority of the respondents, 18%. Sustainable Integrated water resources management is suitable for 15.5% of the respondents and 14.6% for Energy/hydropower. 10.8% is interested in Flood management, while the smallest number is interested to be trained in Desalination of seawater, Rainwater harvesting, Natural systems and Water resources infrastructure.

3.6.2 Survey conclusion

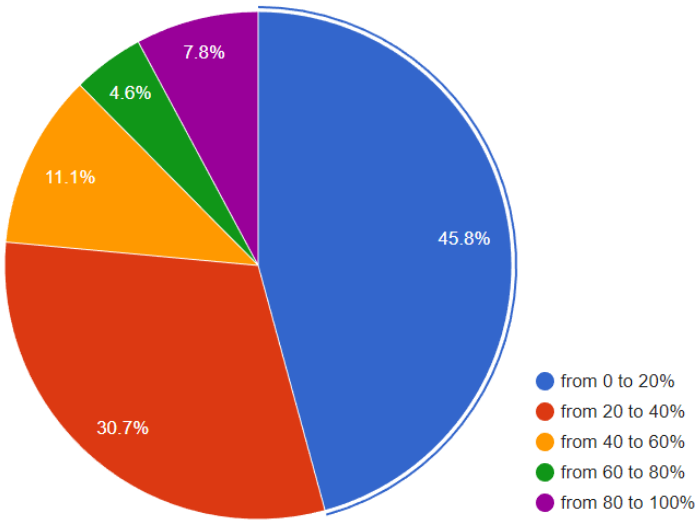
The above presented and analyzed results indicate that the civil sector in general in not much familiar with WMR. The situation is rather alarming, if we take into consideration that the Leposavic area is rich in water, the river Ibar and many natural springs. However, the lack of proper WRM at all aspects has led to very poor understanding of the problem. In addition, insufficient awareness among civil sector and the lack of experts in this area are some of the factors that caused this situation. Therefore, the need for the training of civil sector in all aspects of WMR is more than evident. Encouraging is the fact that 69.1% of respondents are willing to go to certified training institutions and to be trained on WRM. The answers provided by the respondents are good start point for planning training for civil sector. Data obtained here can surely contribute to creation of good and sustainable training for the civil sector and will be used in designing and creation of training syllabus. This will contribute to undertaking the necessary measures in order to raise the awareness of the civil sector on the importance of WRM in general.

3.7 P13 - University of Montenegro - UoM

3.7.1 Survey results

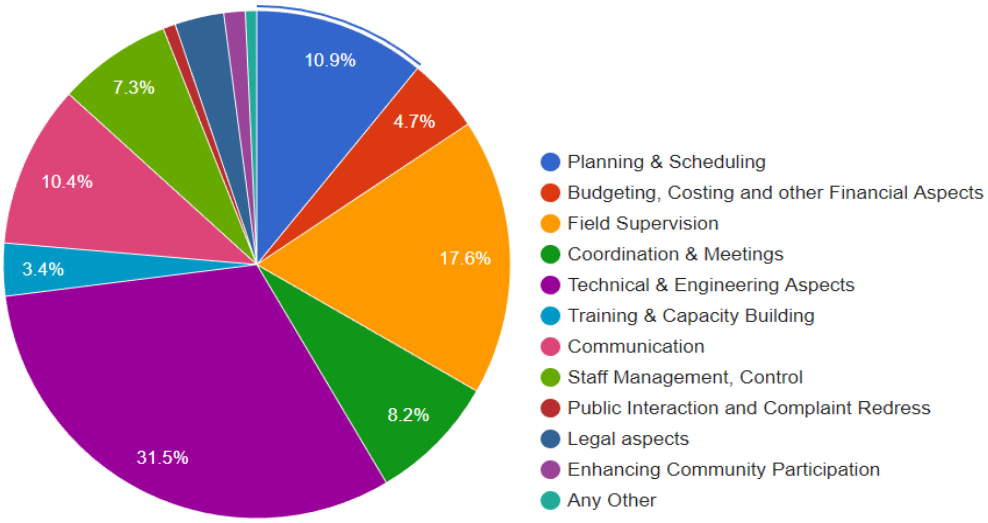
Second group of questions: Job Responsibilities as regards to Water Management in the organization

- In your present position, how much time do you devote for carrying work related to Water Resources Management?



Survey results show that a very small number of respondents directly involved in the management of water resources in their regular business activities. Over 75% of the respondents carried out only up to 20% and 40% of their working time in these activities. Just less than 8% of respondents participate in full capacity in these activities.

- In your present position, what are your responsibilities for Water Resources Management? You may tick more than one.



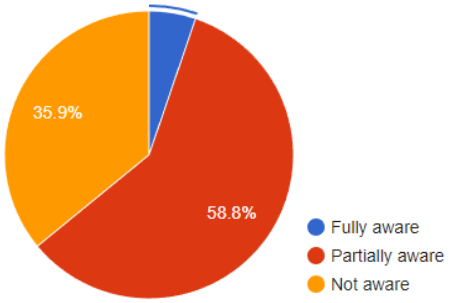
Responsibilities for Water Resources Management is very variegated. It is mostly represented ***technical and engineering aspects*** *of responsibilities (31.5%) and then* ***field supervision****. Very few are*

present responsibilities in the area of ***public interaction and complaint redress*** *and* ***enhancing community participation****. The reason for this is probably in the structure of the companies where the survey participants are employed.*

Third group of questions: Awareness, Knowledge to Water Resources Management Policy

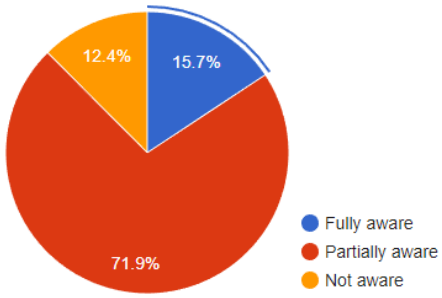
- How aware are you of the instruments for Water Resources Management?

— EU Water Law, Policy or Strategic Plan



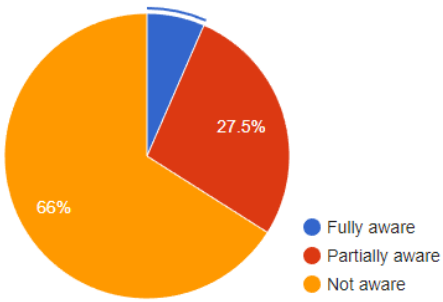
More than half of respondents are only partially familiar with ***EU regulations*** *in the field of water resources management. This can also be seen as a progress in terms of the situation that was ten years ago. Since Montenegro is in the process of harmonizing its regulations with EU standards, this relationship will be improved.*

— National Water Law, Policy or Strategic Plan



Over 70% of respondents are only partially familiar with ***domestic legislation*** *in the field of water resources management. Since over the past decades there have been many changes to laws and regulations, this result can be accepted as a real state.*

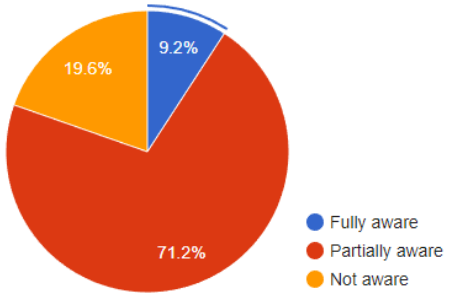
— Regional Water Law, Policy or Strategic Plan



In Montenegro, there is practically no significant ***regional legislation*** *in this area. Almost all decisions are made on the basis of laws that are made at the state level. This is the main reason for such results of the survey on this issue.*

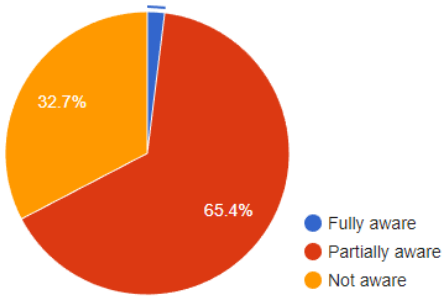
- Are you aware of the other national instruments that may incorporate Water Resources Management?

— Integrated national policy/strategy/plan for land and water resources management



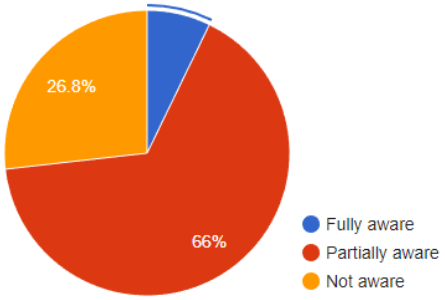
National strategy plan for water resources management *is the basic planning document on which to plan and build all objects in the field of water resources. Most respondents' participants had the previous practice to have contact with this document, to a greater or lesser extent. The result of the survey clearly shows this.*

— Poverty Reduction Strategy (PRS) with water resources management component



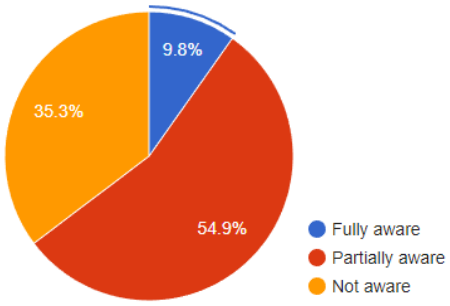
The largest number of respondents has no contact points with this area. A very small number, mostly those working in the public administration, are full familiar with this issue.

— National Strategy for Sustainable Development



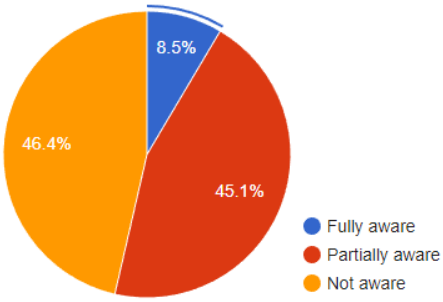
National Strategy for Sustainable Development *is a rather old document that is not familiar to most respondents. It does not have many touch points with sustainable water resources management.*

— National Development Plan with water resources management component



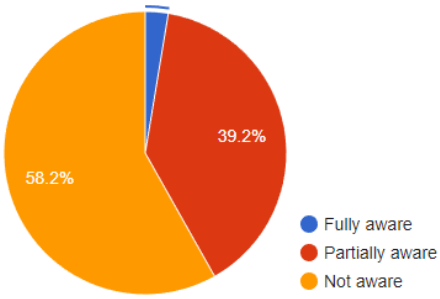
This plan was relatively late (2017), and this may be the reason why a small number of respondents had the opportunity to get to know him more closely.

— National Environmental Action Plan water resources management component



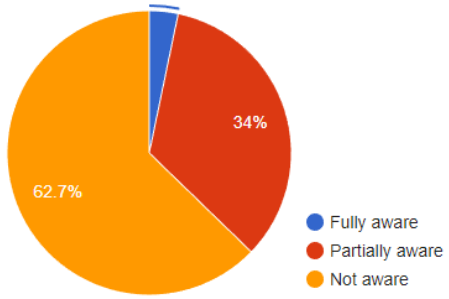
Interest in the introduction to this plan was not present to last 4-5 years because the overall environmental little attention was paid. With the beginning of construction of facilities for wastewater treatment and protection of watercourses, this interest has increased.

— National climate change adaptation policy/strategy/plan with water resources management component



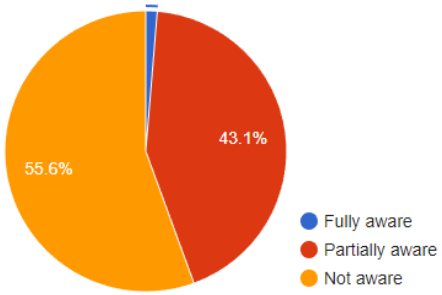
Climate change and especially their forecast in Montenegro were mostly dealt with by foreign consultants. Very few people from Montenegro were involved in the area. It is necessary to increase awareness of the importance of these changes to the entire population.

— National Agricultural Plan with water resources management component



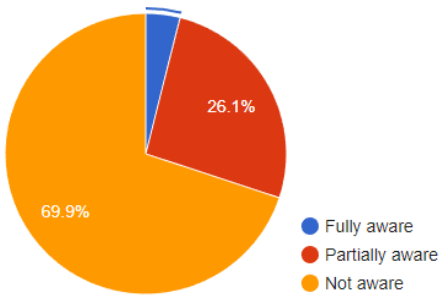
Agriculture as a business activity is relatively poorly developed in Montenegro. Water use - irrigation of agricultural land is also very poorly represented in practice. This is the main reason for the lack of interest in this field among respondents.

— National energy policy/strategy/plan with water resources management component



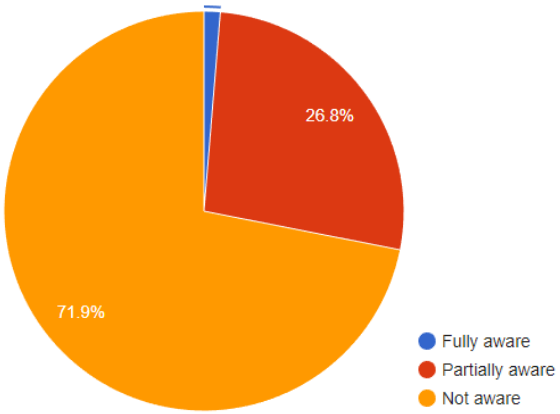
The national energy development strategy has undergone many changes over the past two decades. The use of hydropower is associated with a lot of restrictions that are imposed once and unjustly and for political reasons. A large number of respondents did not have the opportunity to do anything related to this field in practice, hence this poorly informed.

— National desertification policy/strategy/plan with water resources management component



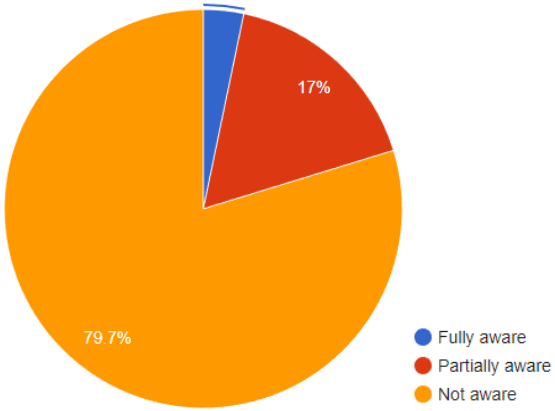
National desertification policy/strategy/plan *does not exist as a separate document, but it is dealt by the national strategy for agricultural development. This is probably the main reason for the very poor knowledge of the respondents about him.*

— National wetland policy/strategy/plan with water resources management component



*There is no **national wetland policy/strategy/plan** with a water resource management component in Montenegro, but it is mentioned in the documents dealing with biodiversity.*

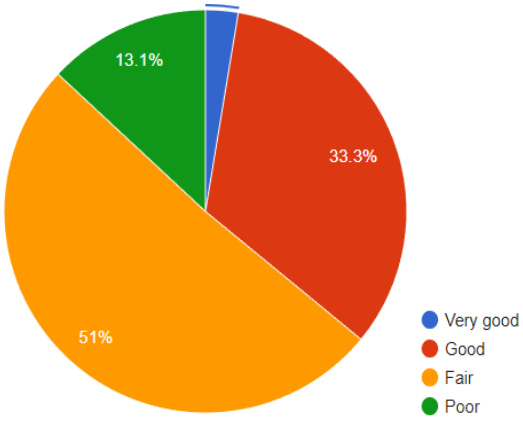
— National biodiversity policy/strategy/plan with water resources management component



***National biodiversity policy/strategy/plan** very little touches the part referring to water resources in terms of their management. Also, the largest number of surveyed are engineering professions and have no contact points with biodiversity.*

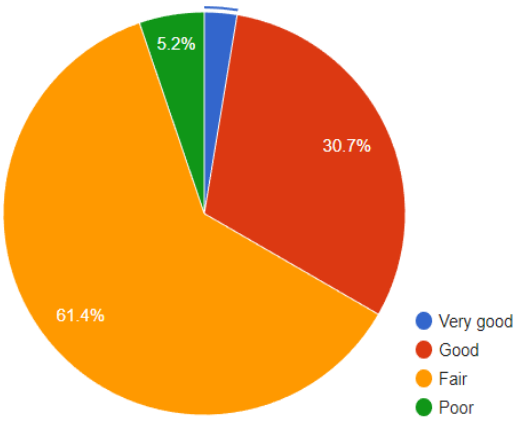
- According to you, what is the level of compliance in your organization as regards to various actions described in the table below? Please tick, as you feel appropriate.

— Groundwater management program



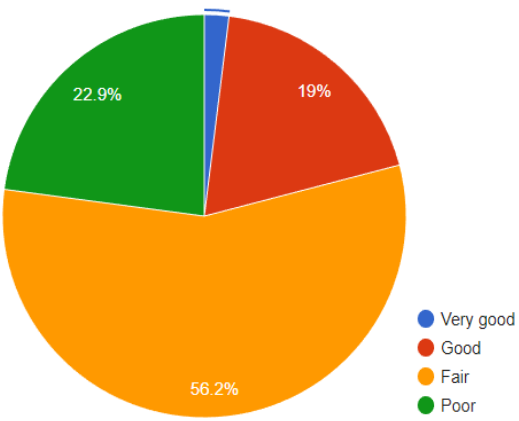
Groundwater is the basis for the supply of drinking water to Montenegrin cities. Their management and use deals with quite a large circle of engineers and technicians who were interviewed so the results of the survey are in line with this.

— Surface management program



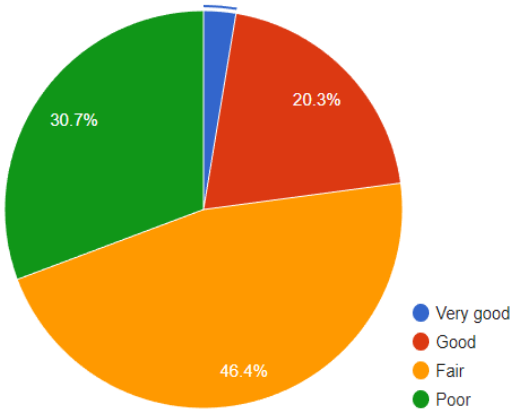
Surface water management is the obligation and need of both public and private institutions and companies that participated in the survey. A large number of employees are fair involved in these activities.

— Linked ground and surface water management program



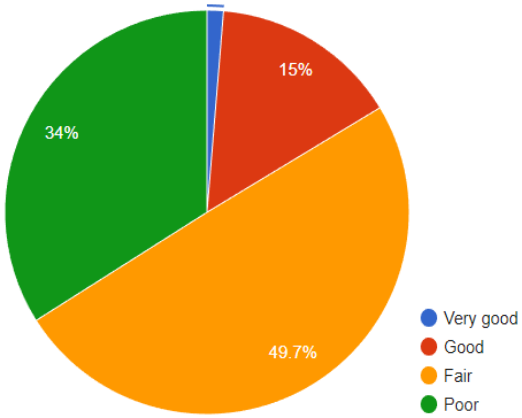
Unfortunately in Montenegro there are no plans that would imply joint ***management of ground and surface waters*** *at the level of the basins. Basically there are separate plans for one or another type of water and most often at the borders of some territorial units (mostly municipalities).*

— Programs for efficient allocation of water resources among competing uses



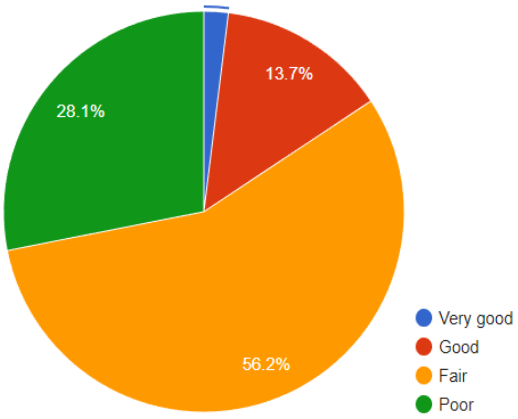
Unfortunately in Montenegro there are no ***Programs for efficient allocation of water resources among competing uses****. Basically there are separate plans for one or another type of water resources and most often at the borders of some territorial units (mostly municipalities).*

— Land/natural resources management programs that include water resources management components



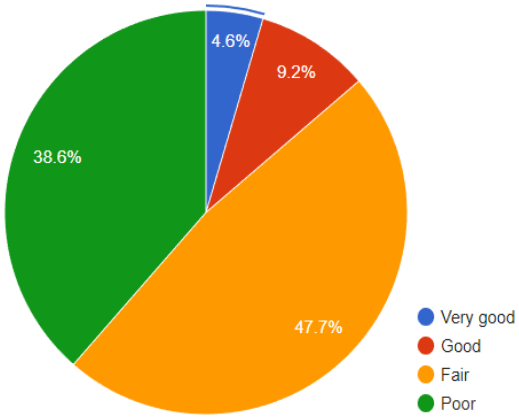
Since the use of ***land/natural resources management programs*** *is mainly related to agriculture and as it is poorly developed, this area was also poorly known among the survey participants. More touchpoints have only employees in public institutions that were not so much in the survey.*

— Programs for allocating water resources that include environmental considerations



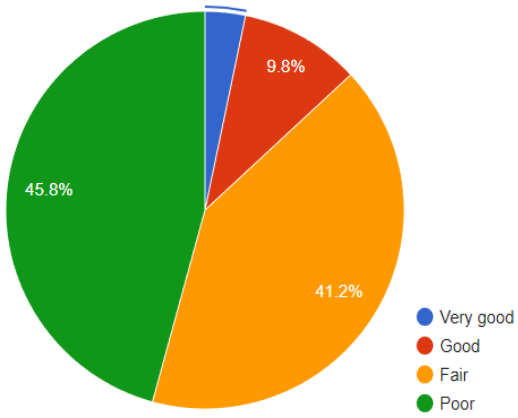
Programs for allocating water resources that include environmental considerations *is also a relatively new thing in Montenegro. A few people from the water sector, especially from the private sector, are familiar with it.*

— Demand management measures to improve water use efficiency in all sectors



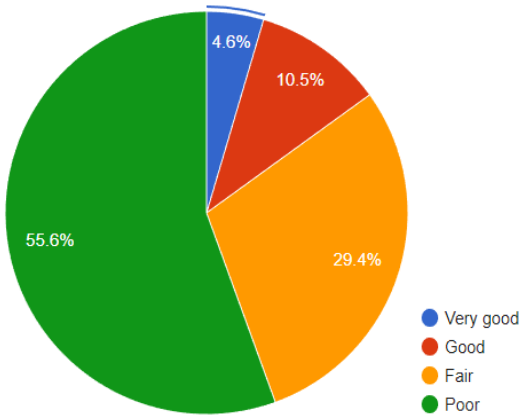
Due to the high percentage of water losses from water supply systems, this topic is dominant primarily in water companies that manage water systems. The results of the survey correspond to the structure of respondents or the number of participants from water utilities.

— Program for re-use or recycling of water



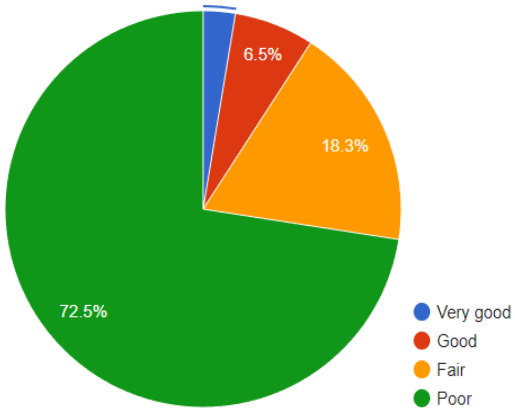
*The **program for reuse or recycling of water** is poorly developed or practically does not exist in Montenegro. Although predicted in the water use strategy, it is considered the ultimate alternative.*

— Programs to evaluate environmental impacts of water projects



The result is quite a surprise given that in Montenegro there is a mechanism for controlling and assessing the impact on the ecological status of water resources. The explanation may lie in the structure of the surveyed because of the specific field covered by the inner circle of experts.

— Programs to address water-related disasters (e.g. floods and droughts)

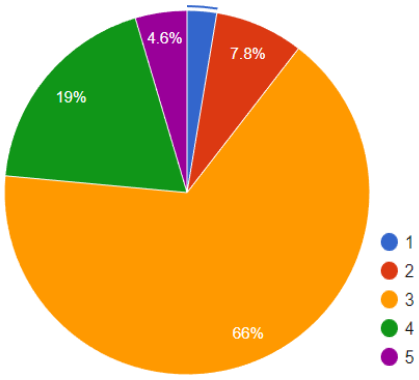


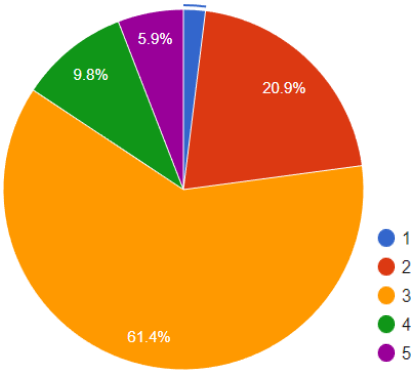
This is an area for which the Ministry of the Interior is responsible in Montenegro. Since the structure of the respondents was mostly technicians and engineers, then the result of the survey was realistic.

Fourth group of questions: Training Need

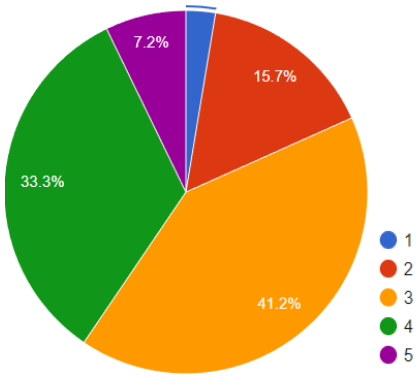
- Please read each of the abilities carefully and rate yourself and your colleagues on the same on the basis of five point rating scale. (Five is the highest and one is lowest)

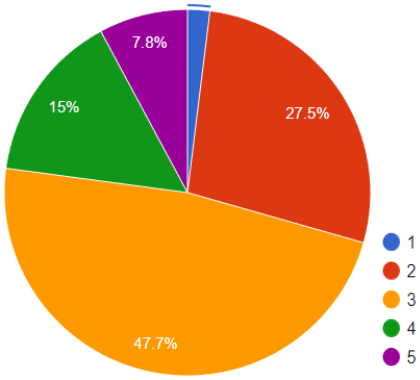
Understanding WRM procedures (self/colleague)



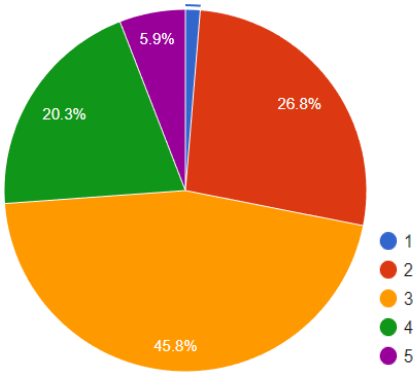


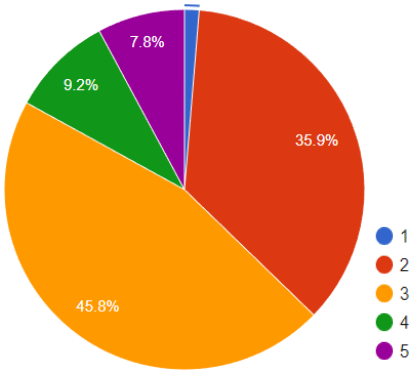
Technical & Engineering aspects (self/colleague)



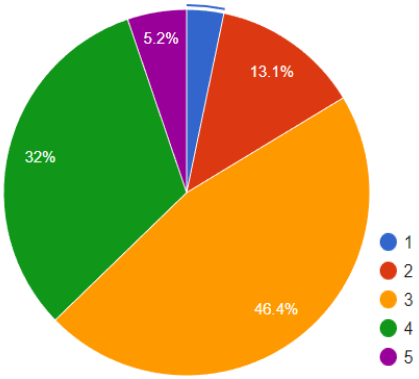


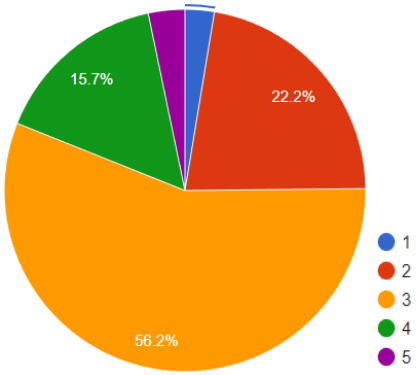
Institutional aspects (self/colleague)



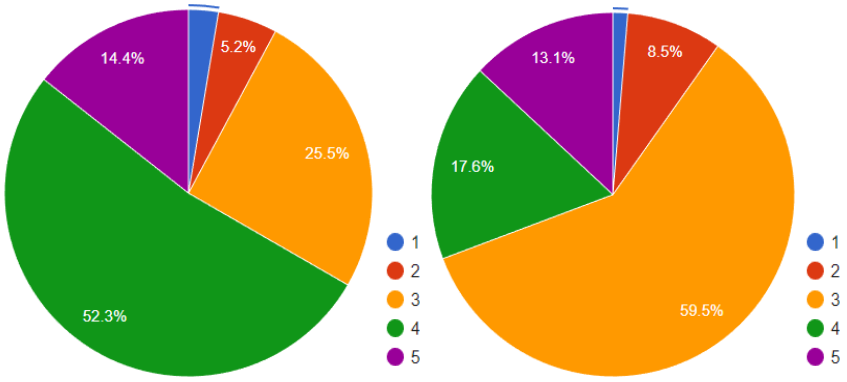


Supervision and Coordination (self/colleague)

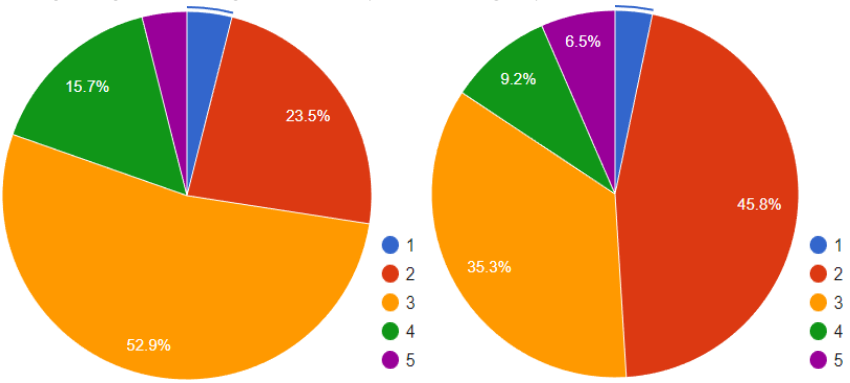




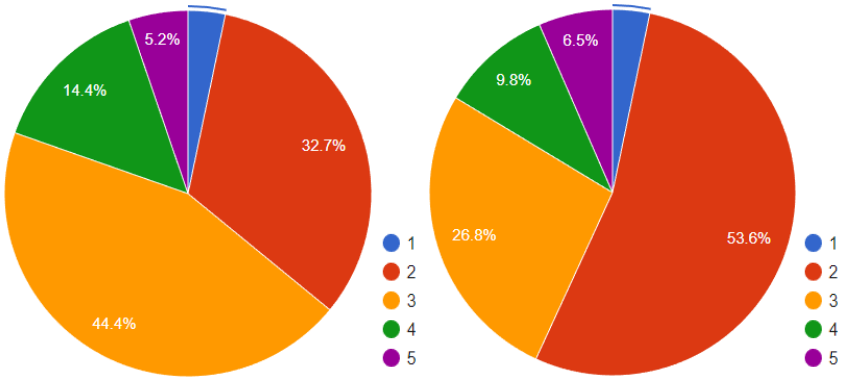
Computer Applications (self/colleague)



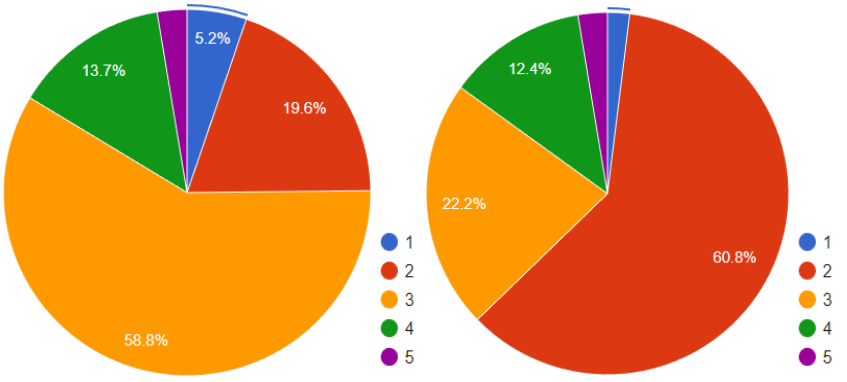
Budgeting & Costing for WRM (self/colleague)



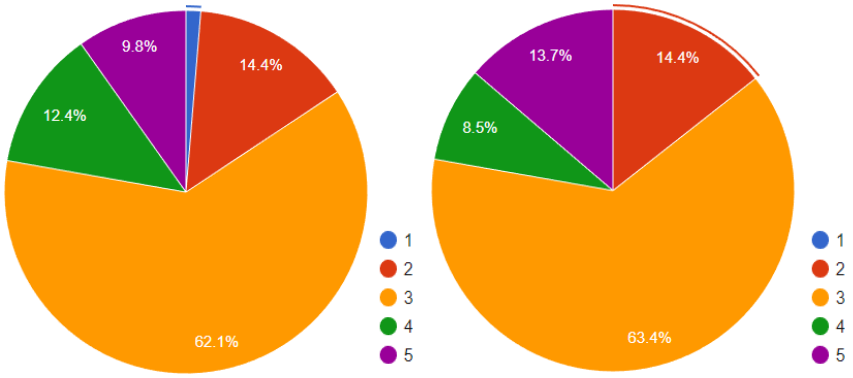
Contracting mechanisms (self/colleague)



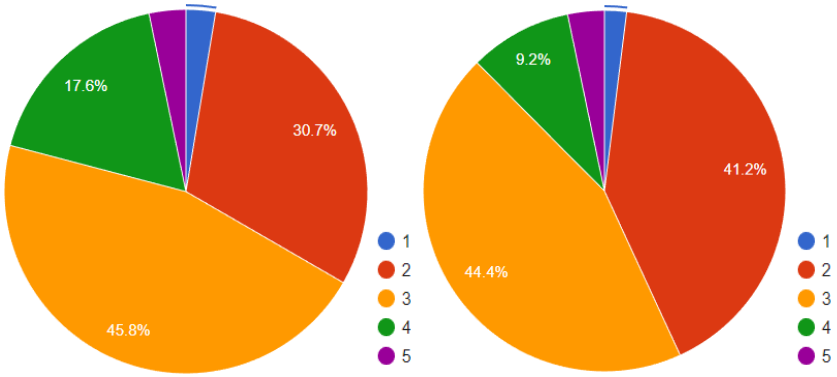
Training & Capacity Building (self/colleague)



Communication Skills (self/colleague)

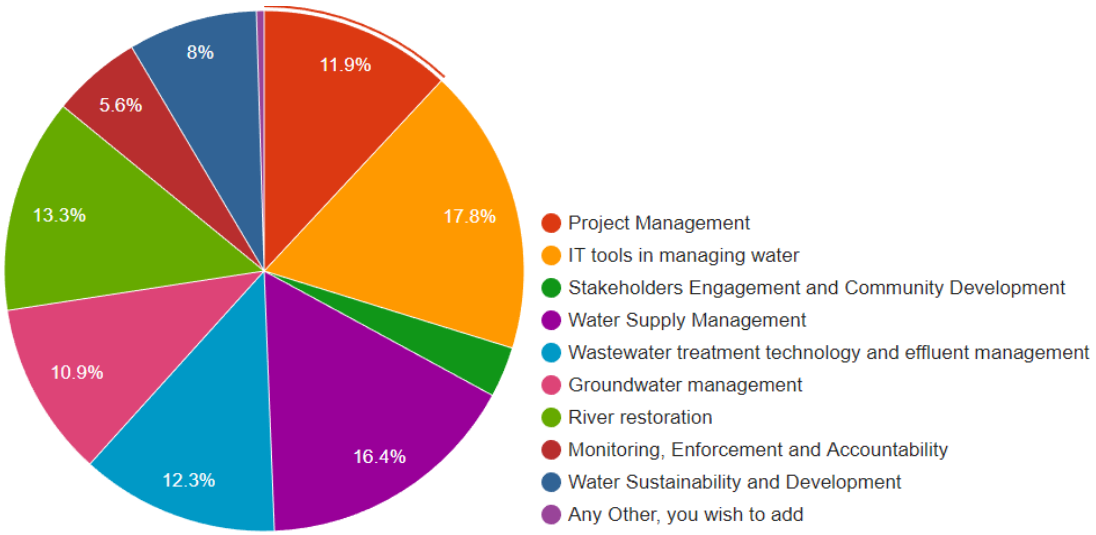


Integrated water resources management (self/colleague)



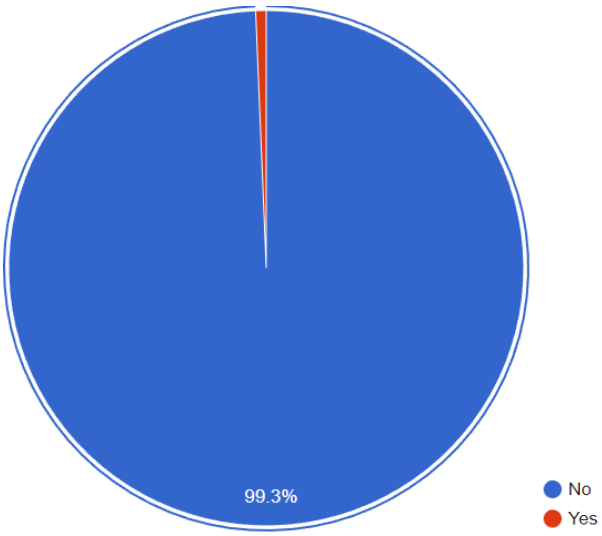
*Over 50% of respondents rated their skills in different areas as well as the skills of their colleagues with a grade of **3** - good. The best grades are given in the part of technical & engineering aspects while the worst estimates and part of the Contracting mechanisms.*

- Please indicate the areas of training needs for you and colleagues in your category to increase the competencies in managing WM services. You may tick more than one.



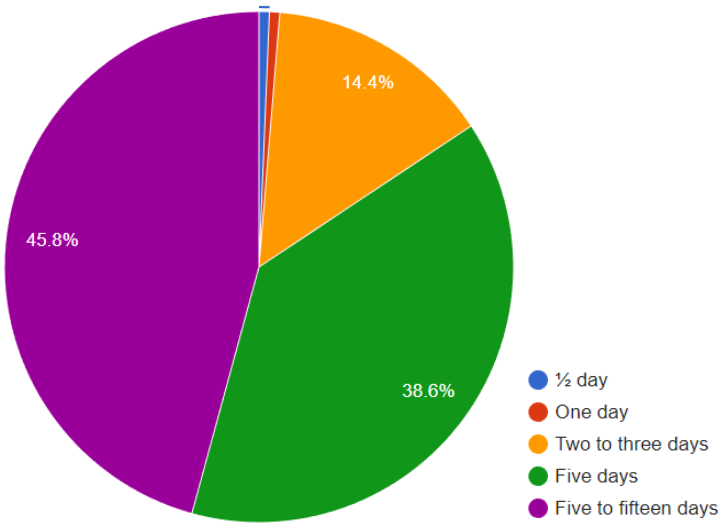
*The areas that the respondents would choose to train are fairly equally selected. The largest number of respondents would be trained in the field **IT tools in managing water** and **water supply management**.*

- Have you or any one of your colleagues received training on the subject of WM? If yes, please provide details.



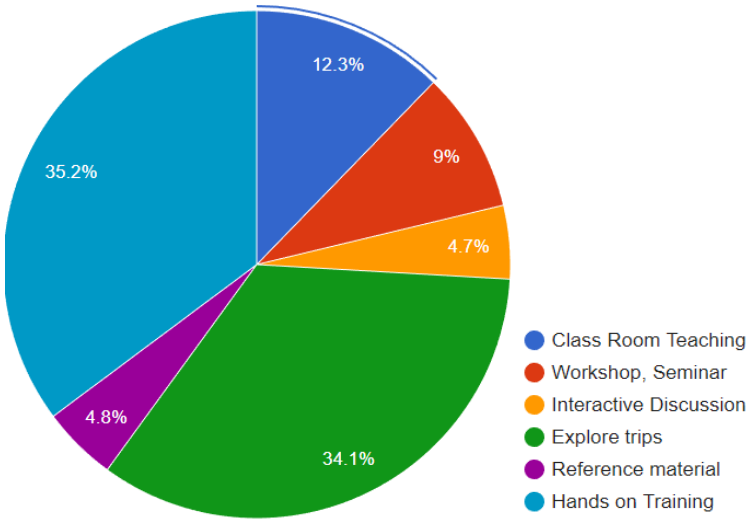
All respondents said they did not receive training on the subject of WM.

- Please suggest the duration of training for your group. Please tick appropriate.



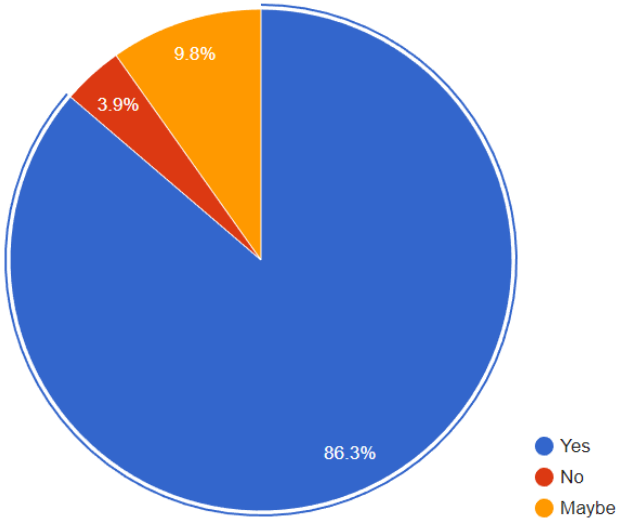
*The dominant duration for these training sessions is **5** and **5 to 15 days**.*

- What is your preferred mode of training? You may tick more than one.



The dominant mode of training for more of respondents is ***explore trips*** *and* ***hands on training****.*

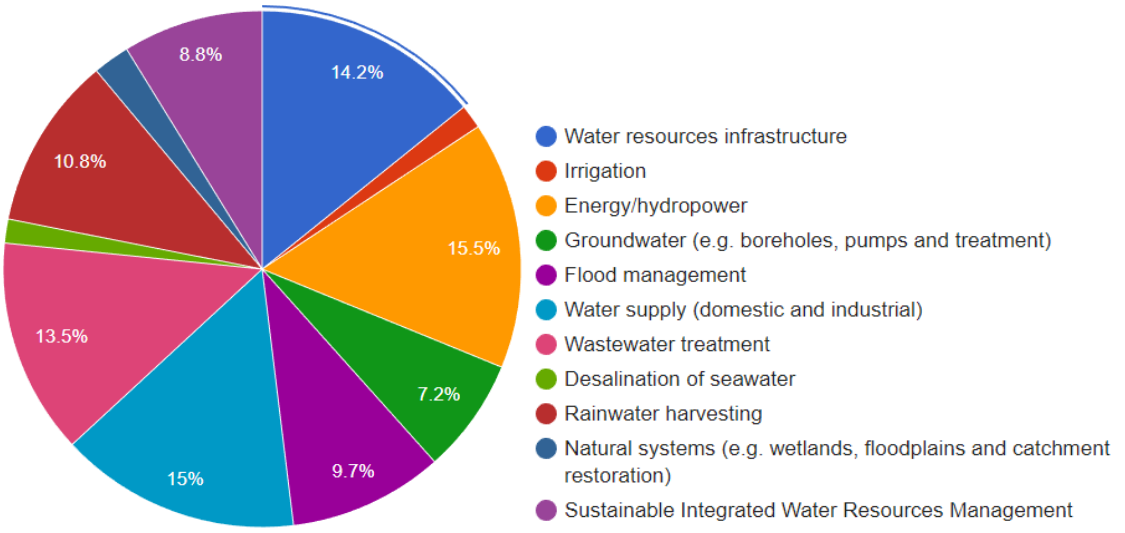
- Are you willing to go to a certified training institution for receiving training on the identified areas of improvements for WM?



Most respondents are willing to go to a certified training institution for receiving training on identified areas of improvements for WM.

Fifth group of questions: Technical Training

- Indicate your preferable technical training. You may tick more than one.



The areas that the respondents would choose as preferable technical training are fairly equally selected. The largest number of respondents would be trained in the field ***energy/ hydropower*** *and* ***water supply engineering****.*

3.7.2 Survey conclusion

The water management sector has not been sufficiently developed in Montenegro. It is a relatively new area that has not developed until the last two decades. There is not a sufficient number of experts in this field. With the start of negotiations on accession to the European Union, this area has come into the focus of interest. On a number of foreign advisers and consultants that provide support to improve the sector.

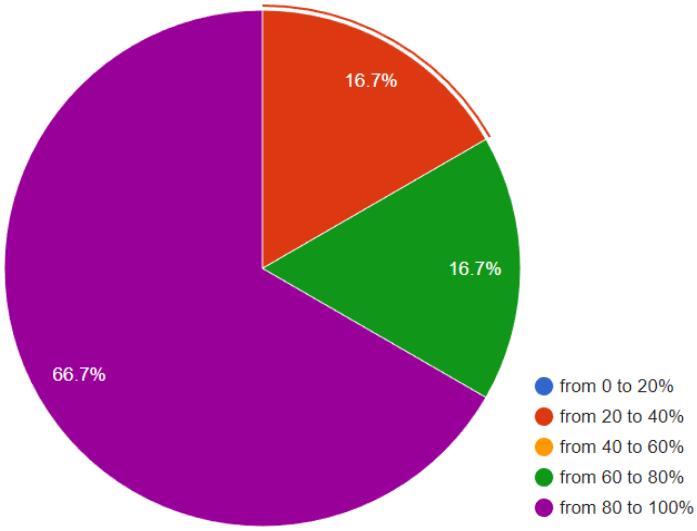
The results of the survey fairly reflect the situation. Obviously, there is a need for this sector to be improved, so that individual areas are further explored and developed. It is also necessary to work on the training of staff currently working in this field, as well as prepare new ones for the challenges that follow.

3.8 P14 - Public Water Management Company "Vode Vojvodine" - PWMC VV

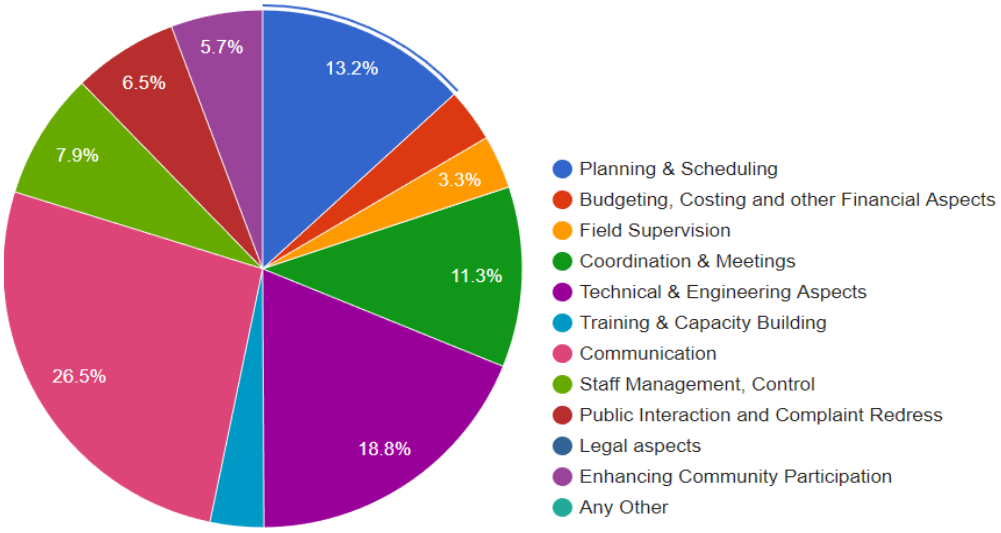
3.8.1 Survey results

Second group of questions: Job Responsibilities as regards to Water Management in the organization

- In your present position, how much time do you devote for carrying work related to Water Resources Management?



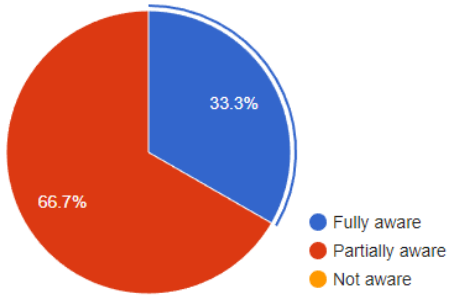
- In your present position, what are your responsibilities for Water Resources Management? You may tick more than one.



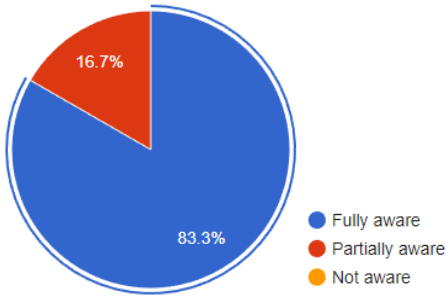
Third group of questions: Awareness, Knowledge to Water Resources Management Policy

- How aware are you of the instruments for Water Resources Management?

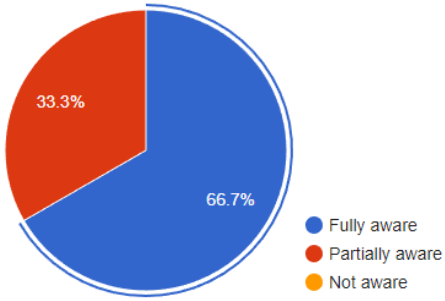
— EU Water Law, Policy or Strategic Plan



— National Water Law, Policy or Strategic Plan

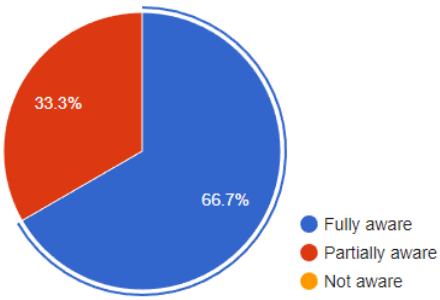


— Regional Water Law, Policy or Strategic Plan

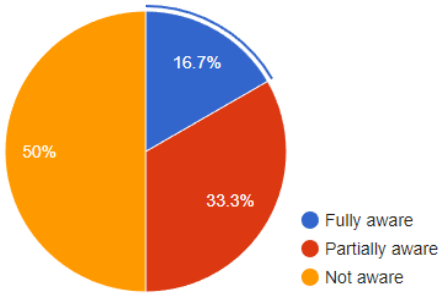


- Are you aware of the other national instruments that may incorporate Water Resources Management?

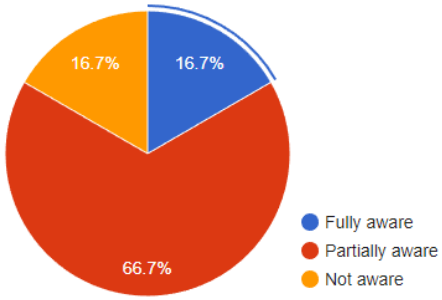
— Integrated national policy/strategy/plan for land and water resources management



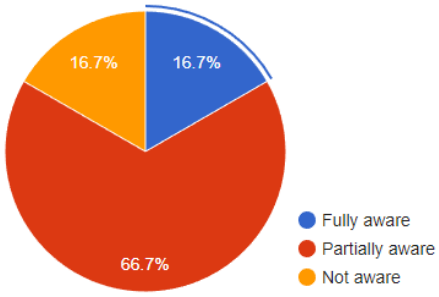
— Poverty Reduction Strategy (PRS) with water resources management component



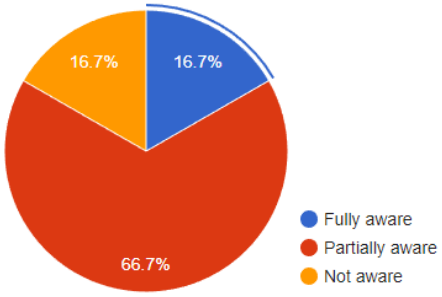
— National Strategy for Sustainable Development



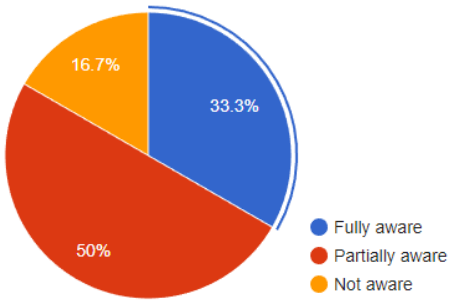
— National Development Plan with water resources management component



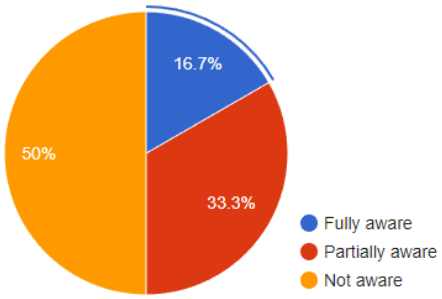
— National Environmental Action Plan water resources management component



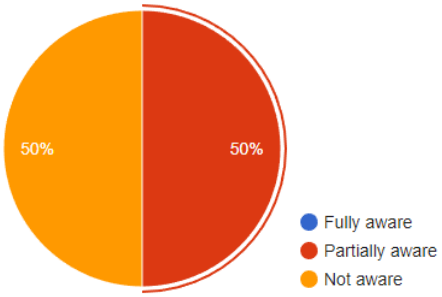
— National climate change adaptation policy/strategy/plan with water resources management component



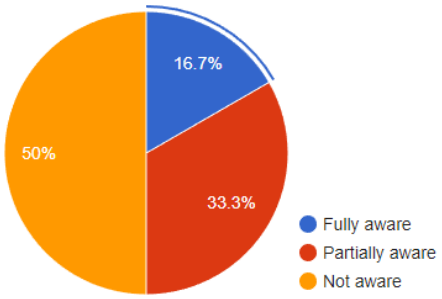
— National Agricultural Plan with water resources management component



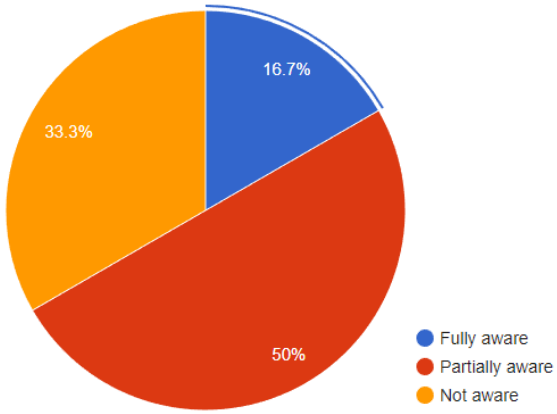
— National energy policy/strategy/plan with water resources management component



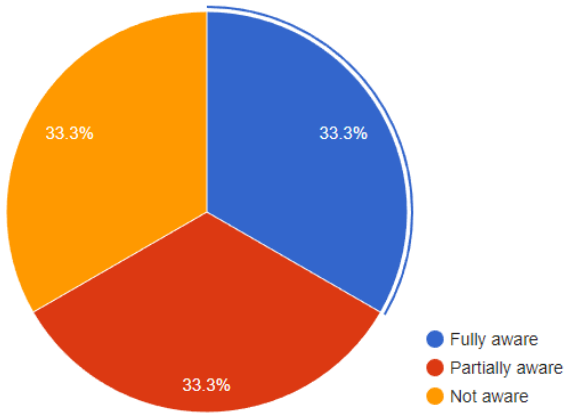
— National desertification policy/strategy/plan with water resources management component



— National wetland policy/strategy/plan with water resources management component

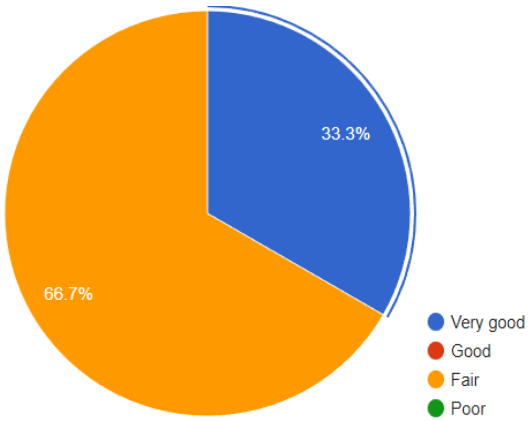


— National biodiversity policy/strategy/plan with water resources management component

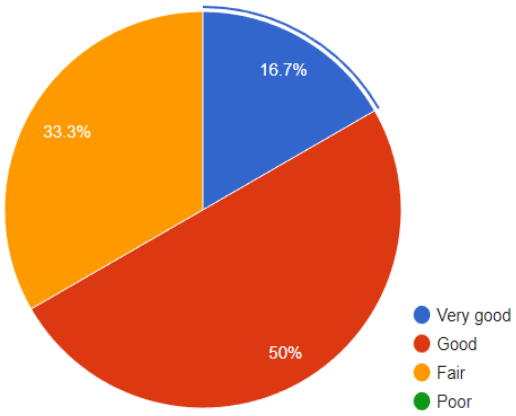


- According to you, what is the level of compliance in your organization as regards to various actions described in the table below? Please tick, as you feel appropriate.

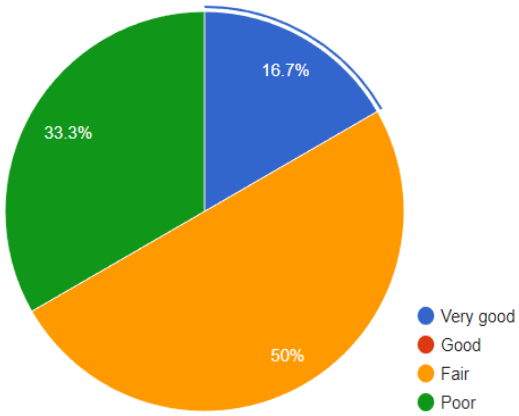
— Groundwater management program



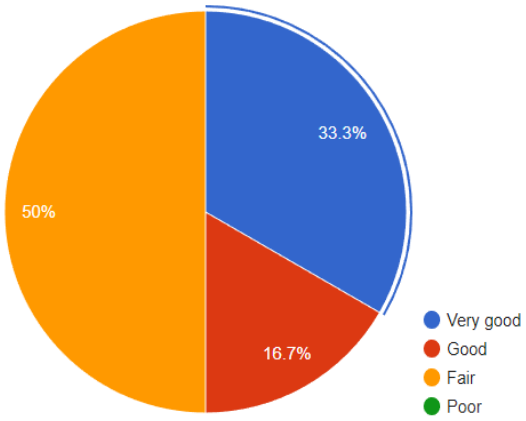
— Surface management program



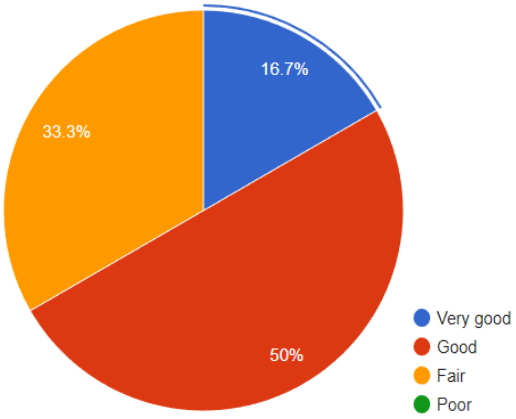
— Linked ground and surface water management program



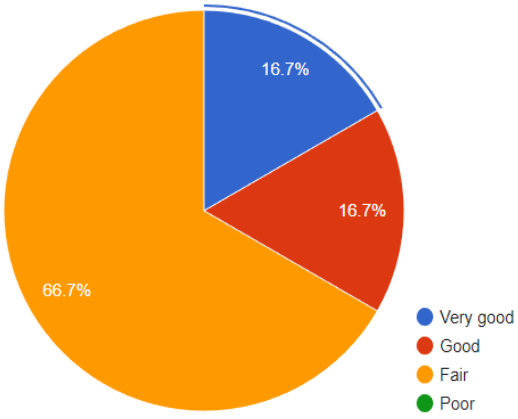
— Programs for efficient allocation of water resources among competing uses



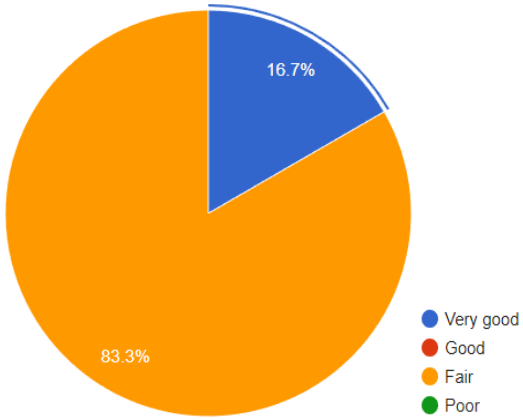
— Land/natural resources management programs that include water resources management components



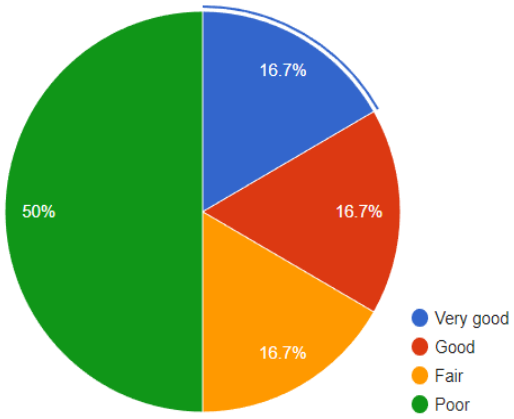
— Programs for allocating water resources that include environmental considerations



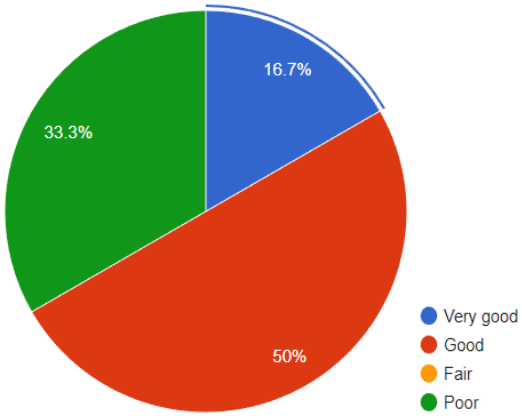
— Demand management measures to improve water use efficiency in all sectors



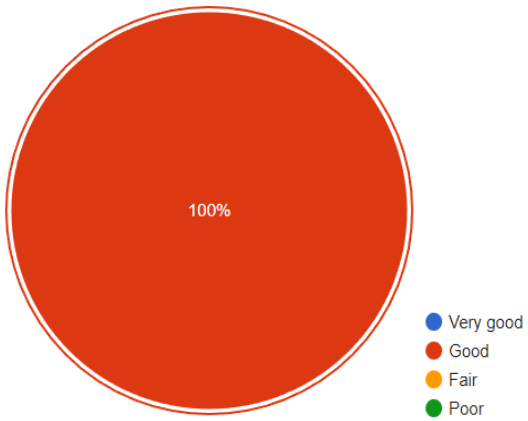
— Program for re-use or recycling of water



— Programs to evaluate environmental impacts of water projects



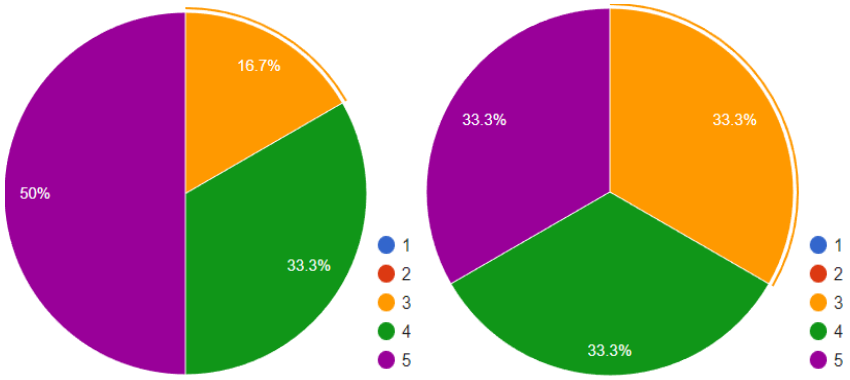
— Programs to address water-related disasters (e.g. floods and droughts)



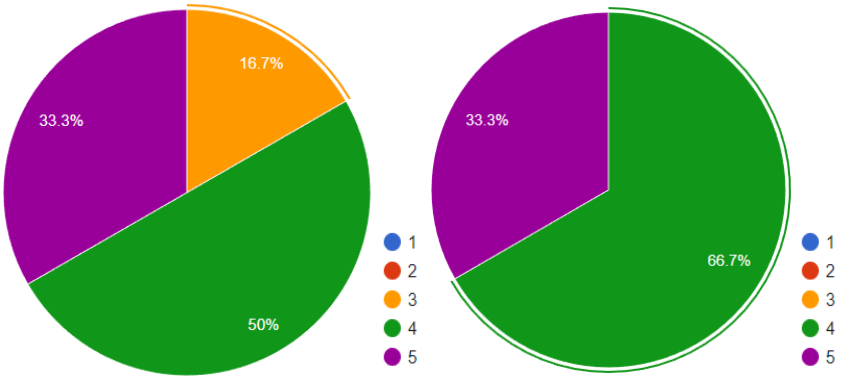
Fourth group of questions: Training Need

- Please read each of the abilities carefully and rate yourself and your colleagues on the same on the basis of five point rating scale. (Five is the highest and one is lowest)

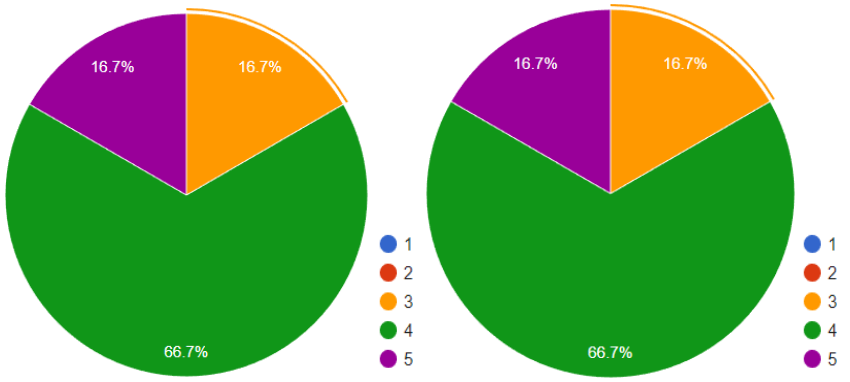
Understanding WRM procedures (self/colleague)



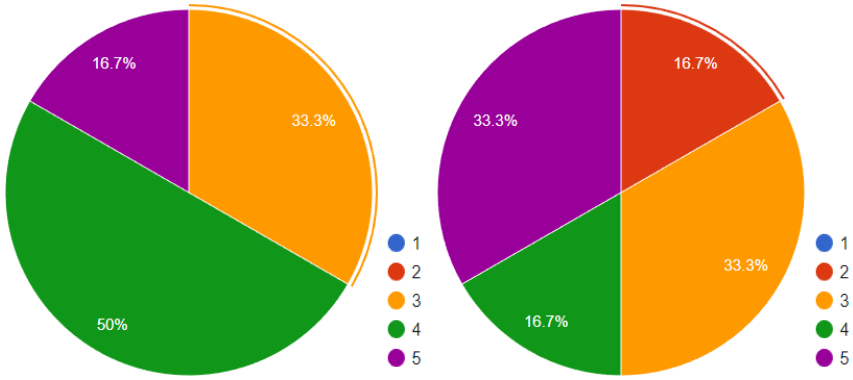
Technical & Engineering aspects (self/colleague)



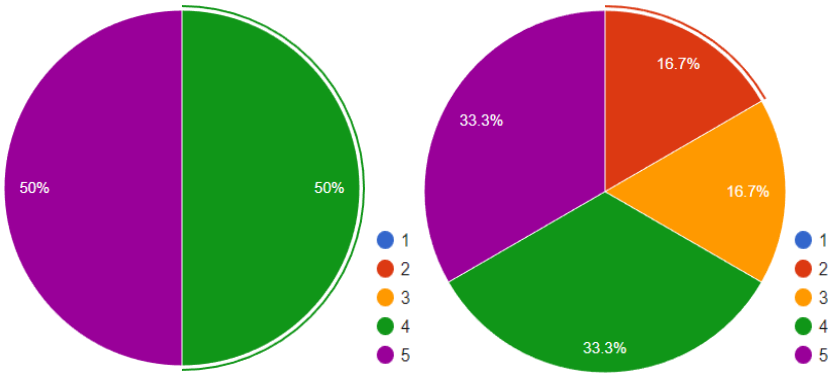
Institutional aspects (self/colleague)



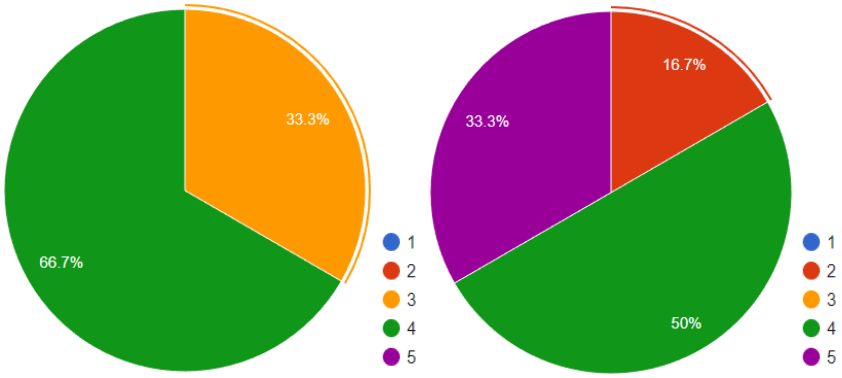
Supervision and Coordination (self/colleague)



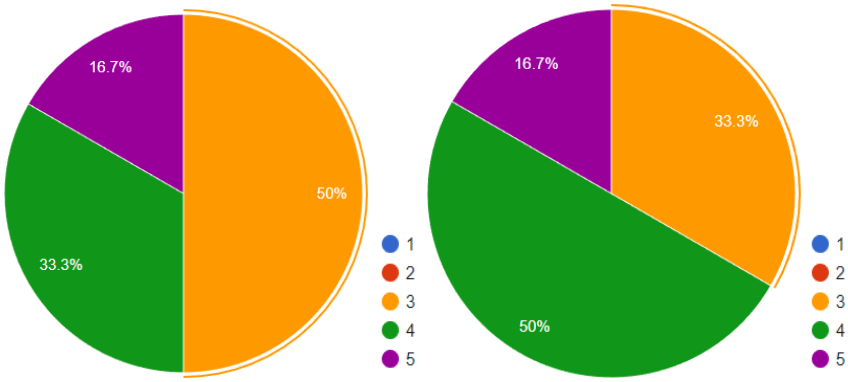
Computer Applications (self/colleague)



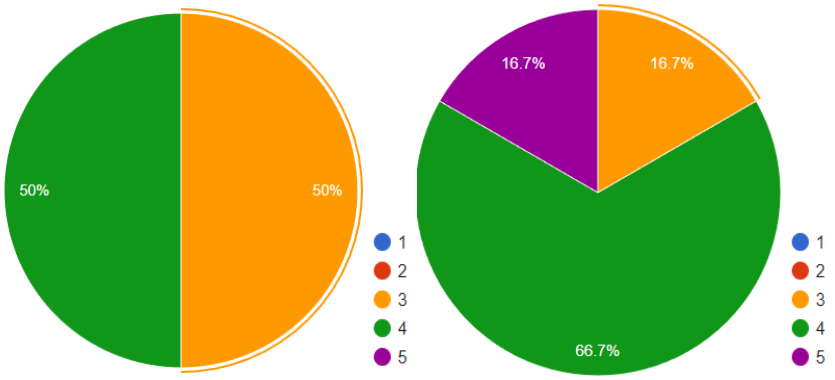
Budgeting & Costing for WRM (self/colleague)



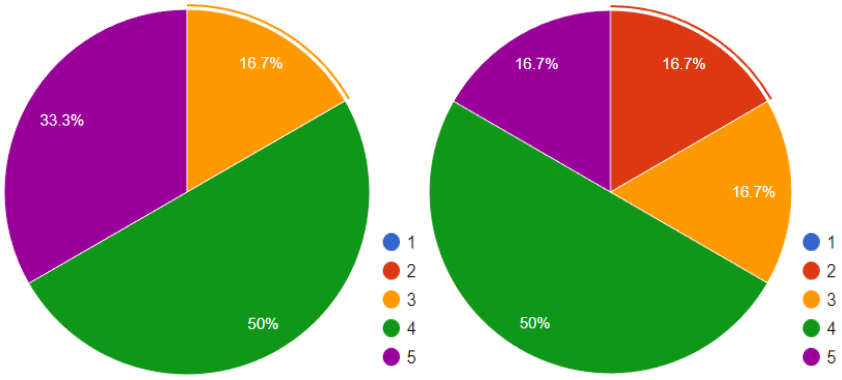
Contracting mechanisms (self/colleague)



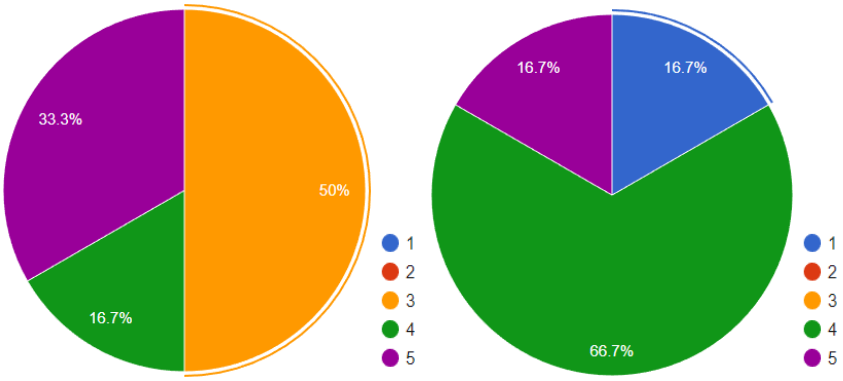
Training & Capacity Building (self/colleague)



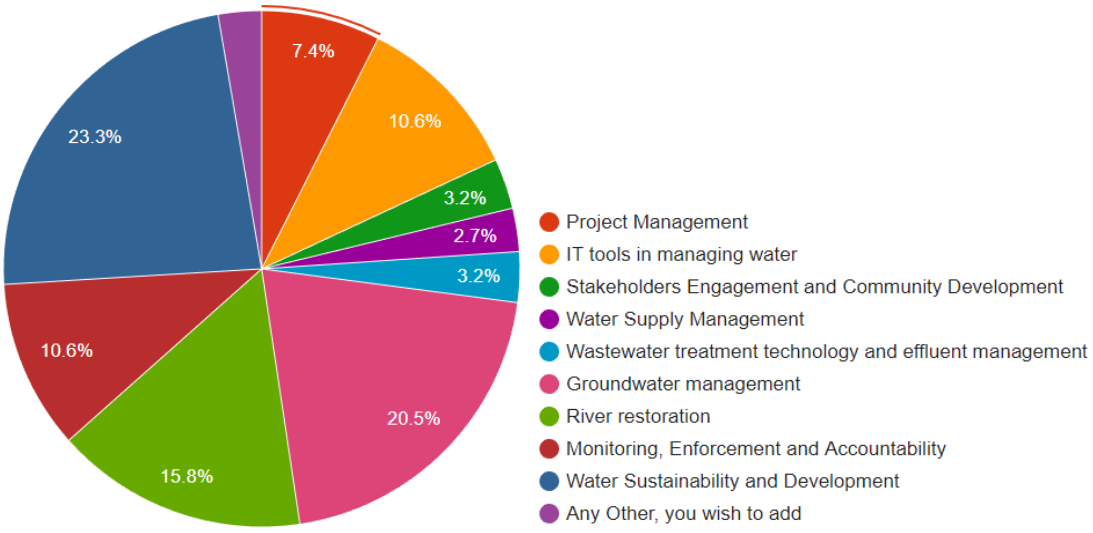
Communication Skills (self/colleague)



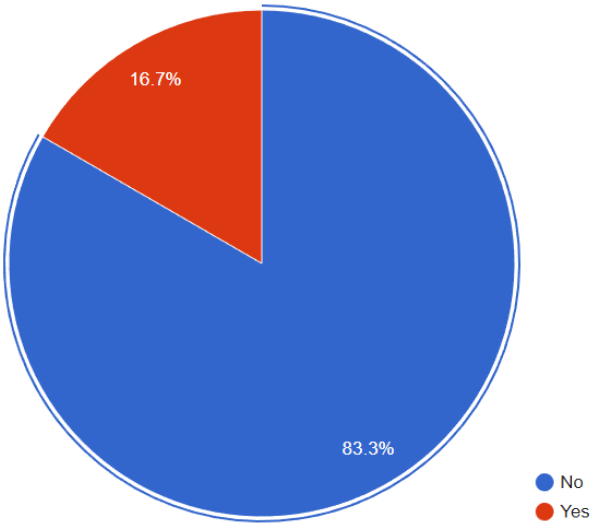
Integrated water resources management (self/colleague)



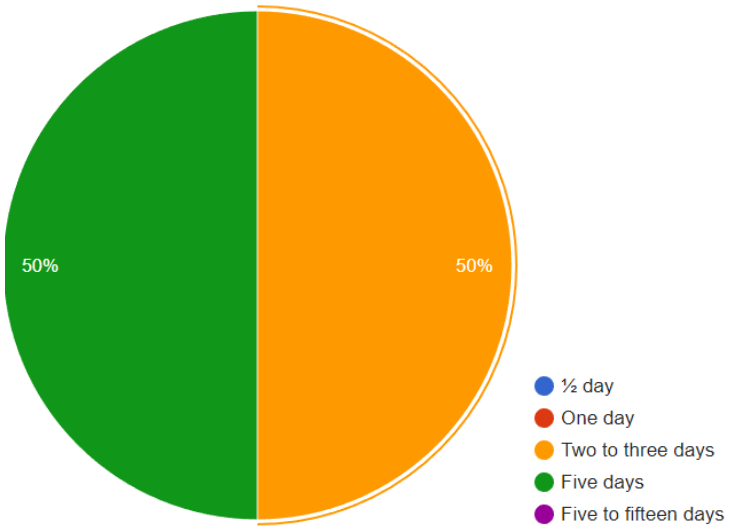
- Please indicate the areas of training needs for you and colleagues in your category to increase the competencies in managing WM services. You may tick more than one.



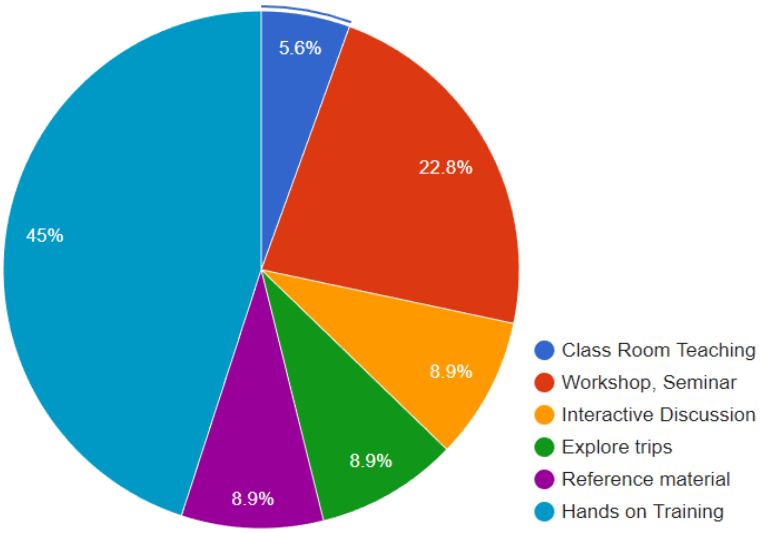
- Have you or any one of your colleagues received training on the subject of WM? If yes, please provide details.



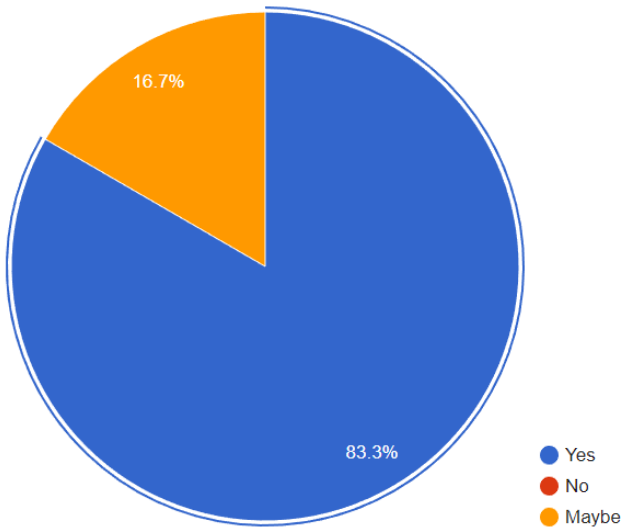
- Please suggest the duration of training for your group. Please tick appropriate.



- What is your preferred mode of training? You may tick more than one.

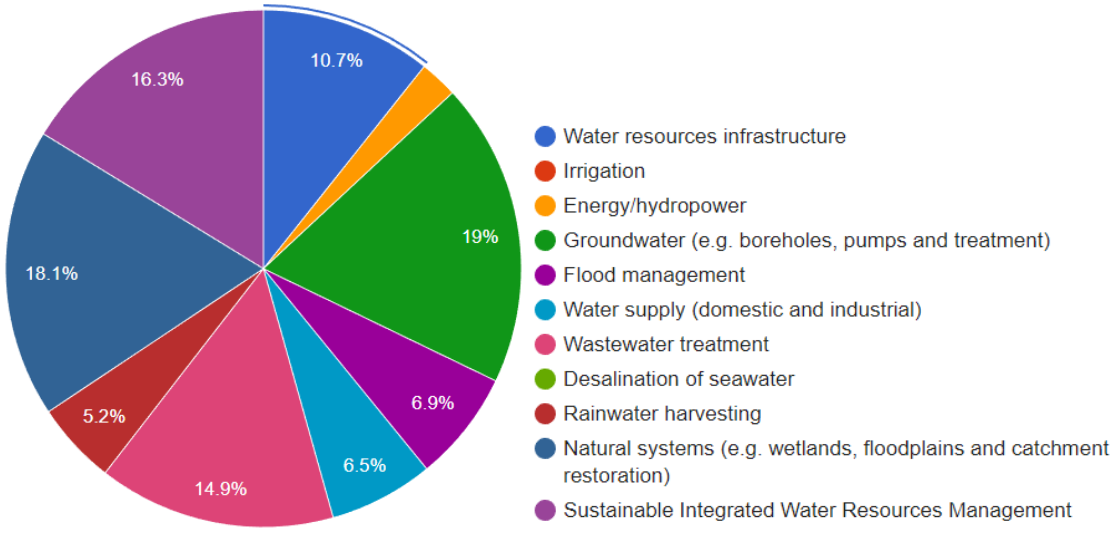


- Are you willing to go to a certified training institution for receiving training on the identified areas of improvements for WM?



Fifth group of questions: Technical Training

- Indicate your preferable technical training. You may tick more than one.



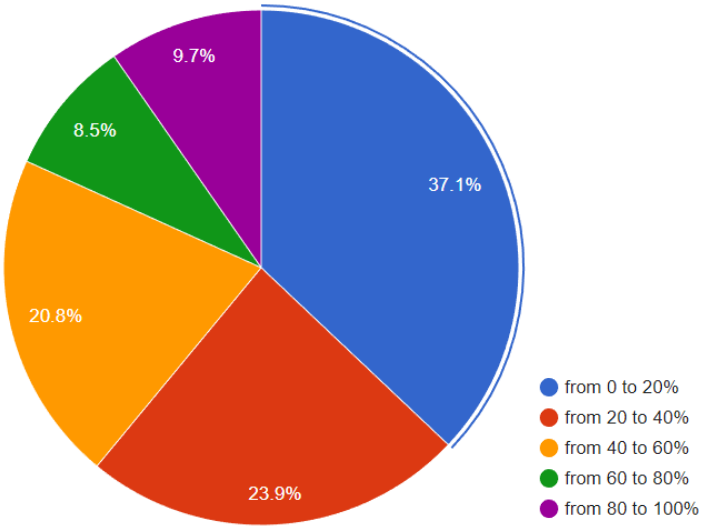
3.9 Survey results in total

3.9.1 Survey results

Since the interviews were aimed to estimate the level of knowledge about the issue of Sustainable Water Resources Management among the professionals in either public or private entities, awareness on the strategic documents, action plans and procedures, and experience in applying the best procedures in water management, the first question was aimed to establish the participation of water management in their operations.

Second group of questions: Job Responsibilities as regards to Water Management in the organization

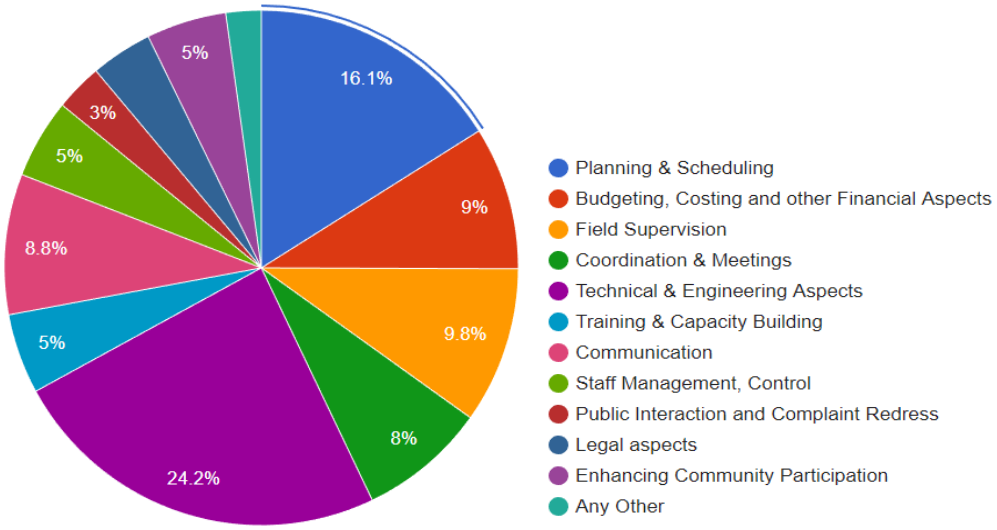
- In your present position, how much time do you devote for carrying work related to Water Resources Management?



*Based on the results of this survey in total, the most of the participants (37.1%) dedicate **from 0-20%** of their time for carrying work related to Water Resources Management, 23.9% of the participants are **from 20-40%** focused on the water problems, 20.8% of respondents spent from 40-60% of their time to WRM, 8.5% of examinees are **from 60-80%** dedicated to WRM, and 9.7% of participants devote **from 80-100%** of their time for carrying work related to Water Resources Management.*

*As it can be seen from separately reports, depending on the HEI's that initiated the survey, the results vary significantly in some cases: from 8.7% respondents from Nis to 53.8% of respondents from UNMO dedicate **from 0-20%** of their time to WRM, from 13.2% (TCASU) to 30.7% (UOM) spend **from 20-40%** of their time to WRM, from 11.1% of the participants (UOM) to 30.4% (UNI) are **from 40-60%** focused on the water problems, from 2.0% of the participants(UPKM) to 15.3% of the participants (UNS) dedicate **from 60-80%** of their time to WRM, and from 1.3% examinees (UPKM) to 18% of examinees (UNI) spend **from 80-100%** of their time to WRM. Based on this question, it is obvious that a small number of respondents are fully committed to Water Resources Management.*

- In your present position, what are your responsibilities for Water Resources Management? You may tick more than one.



Regarding to the responsibilities for Water Resources Management 24.2% of respondents expressed that ***Technical & Engineering aspects*** *are mostly done in this area, as internal actions within the regional and local water companies and local administration. Other actions that are most common are* ***Planning & Scheduling, Field Supervision, Budgeting, Costing and other Finance Aspects, Communications, and Coordination & Meetings*** *are addressed in portions from 8-16.1%. On the other hand,* ***Training & Capacity Building, Staff Management Control, Enhancing Community Participation****,* ***Legal Aspects, Public Interaction and Compliant Redress,*** *and* ***Any Other*** *are addressed in smaller portions from 2.2-5%.*

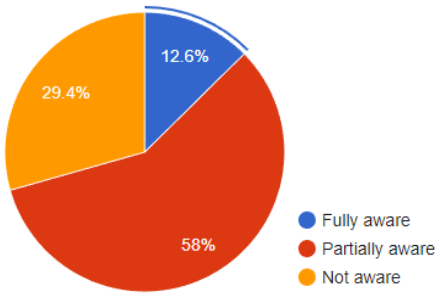
Following separate reports the results vary, which mostly depends on the structure of the respondents. Results on the answer about the responsibilities for Water Resources Management are as following: ***Planning & Scheduling*** *from 10.9% (UOM) to 21% (UNSA),* ***Budgeting, Costing and other Finance Aspects*** *from 4.2% (UNSA) to 15.8% (UPKM),* ***Field Supervision*** *from 6.2% (TCASU) to 17.6% (UOM),* ***Coordination & Meetings*** *from 5.7% (TCASU) to 11.4% (UNS),* ***Technical & Engineering aspects*** *from 16.4% (UPKM) to 37.4% (UNSA),* ***Training & Capacity Building*** *from 1.8% (UNMO) to 9.9% (UNS),* ***Communications*** *from 4.7% (UNSA) to 11.6% (UNS),* ***Staff Management Control*** *from 1.9% (UPKM) to 7.3% (UOM),* ***Public Interaction and Compliant Redress*** *from 0.8% (UOM) to 5.8% (UPKM),* ***Legal Aspects*** *from 1% (UPKM) to 7.9% (TCASU),* ***Enhancing Community Participation*** *from 1.4% (UMO) to 8.6% (TCASU), and* ***Any Other*** *from 0.7% (UOM) to 5.1% (UNMO). It can be concluded, from this question, that most of respondents have responsibilities in technical aspects, including planning and scheduling and field supervision.*

Third group of questions: Awareness, Knowledge to Water Resources Management Policy

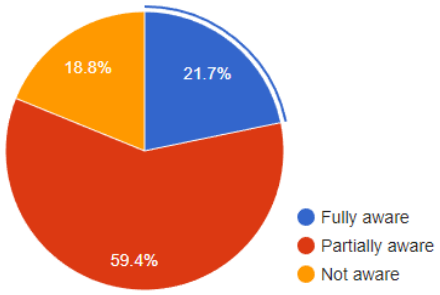
The professionals in the water management are asked about the Water Resources Management Policy and its instruments in implementing the best practices in Water Management. The results of that survey were presented in the following charts:

- How aware are you of the instruments for Water Resources Management?

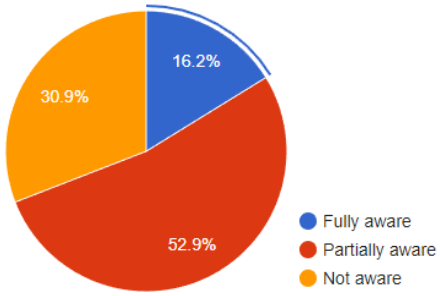
  — EU Water Law, Policy or Strategic Plan



  — National Water Law, Policy or Strategic Plan



  — Regional Water Law, Policy or Strategic Plan



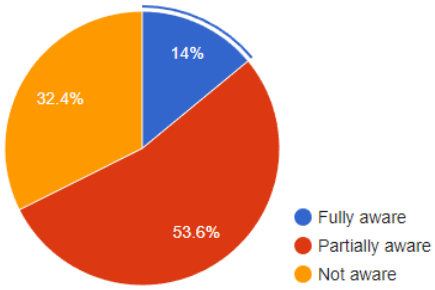
The survey shows that awareness of examinee of the instruments for Water Resources Management is significant, especially about National Water Law, Policy or Strategic Plan. The percentage of marked responses are: ***fully aware*** *from 12.6% (EU Water Law) to 21.7% (National Water Law),* ***partially aware*** *from 52.9% (Regional Water Law) to 59.4% (National Water Law), and* ***not aware*** *from 18.8% (National Water Law) to 30.9% (Regional Water Law).*

Answers on questions about the instruments for Water Resources Management, given from the participants from the HEI's that initiated the survey, are as following: ***EU Water Law, Policy or Strategic Plan****:* ***fully aware*** *vary from 5.2% (UOM) to 20.2% (UNS),* ***partially aware*** *from 45.7% (UNMO) to 78.8% (UPKM), and* ***not aware*** *from 13.2% (UPKM) to 43.9% (UNMO);* ***National Water Law, Policy or Strategic Plan****:* ***fully aware*** *vary from 13% (UNI) to 36.4% (UPKM),* ***partially aware*** *from 48.7% (TCASU) to 71.9% (UOM), and* ***not aware*** *from 7.3% (UPKM) to 28.9% (UNMO); and for the last instrument of Regional Water Law, Policy or Strategic Plan:* ***fully aware*** *vary from 6.5% (UOM) to 28.8% (UNS),* ***partially aware*** *from 27.5% (UOM) to 73.5% (UPKM), and* ***not aware*** *from 15.2% (UPKM) to 66 % (UOM). Based on this*

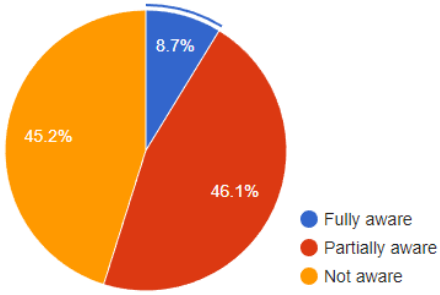
question, we can conclude that there are a large number of respondents who are not aware of the instruments for Water Resources Management. This could be one of the topic for LLL courses that would be prepared.

- Are you aware of the other national instruments that may incorporate Water Resources Management?

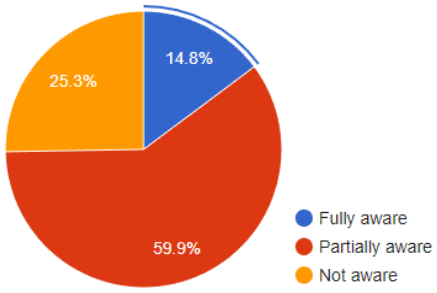
  — Integrated national policy/strategy/plan for land and water resources management



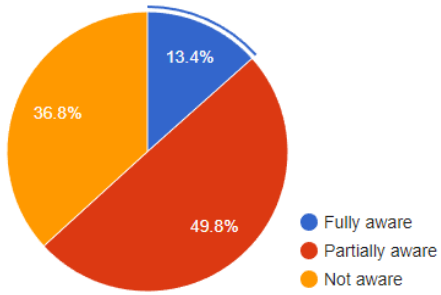
  — Poverty Reduction Strategy (PRS) with water resources management component



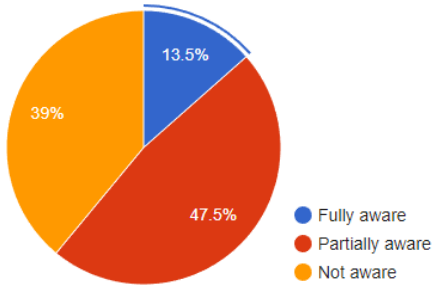
  — National Strategy for Sustainable Development



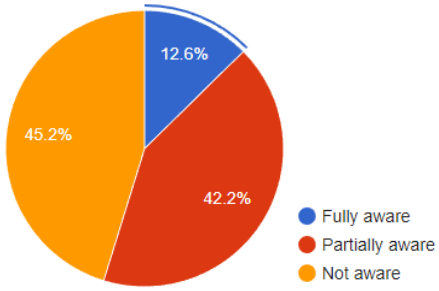
— National Development Plan with water resources management component



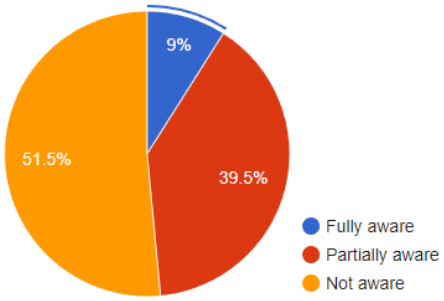
— National Environmental Action Plan water resources management component



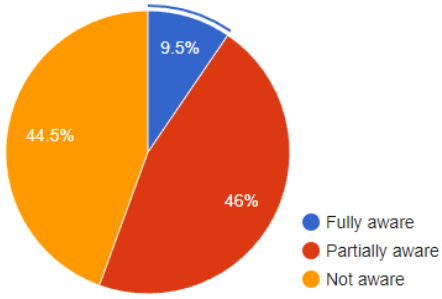
— National climate change adaptation policy/strategy/plan with water resources management component



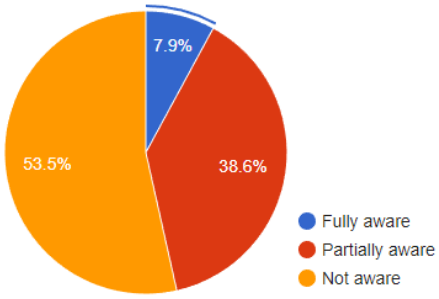
— National Agricultural Plan with water resources management component



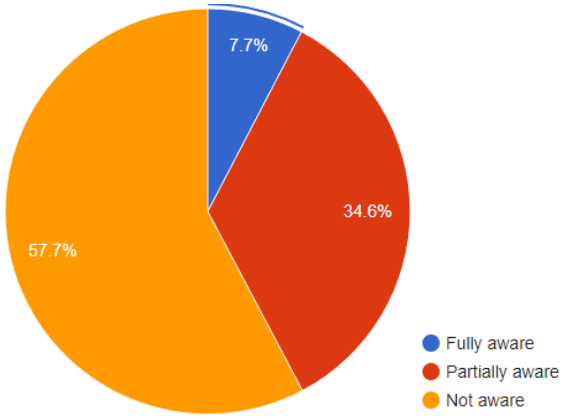
— National energy policy/strategy/plan with water resources management component



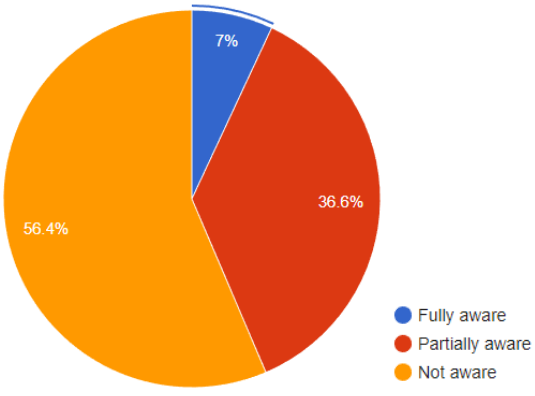
— National desertification policy/strategy/plan with water resources management component



— National wetland policy/strategy/plan with water resources management component



— National biodiversity policy/strategy/plan with water resources management component



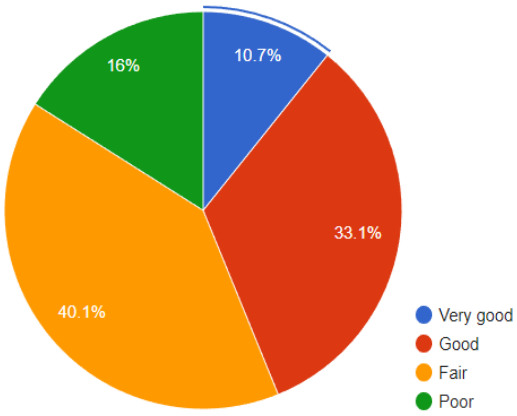
The results on awareness of the other national instruments that may incorporate Water Management are very similar by looking the survey results in total: **fully aware** *people are from 7% (**National biodiversity policy/strategy/plan with water resources management component**) to 14.8% (**National Strategy for Sustainable Development**), partially aware participants are from 34.6% (**National wetland policy/strategy/plan with water resources management component**) to 59.9% (**National Strategy for Sustainable Development**), while the most people are* **not aware** *with the other national instruments, from 25.3% (**National Strategy for Sustainable Development**) to 57.7% (**National wetland policy/strategy/plan with water resources management component**).*

On the other side, differences between the answers of the examinees are as following: for answers on awareness on **Integrated national policy/strategy/plan for land and water resources management** *results on* **Fully aware** *vary from 3.3% (UPKM) to 24.2% (UNI),* **Partially aware** *from 35.1% (UPKM) to 71.2% (UOM) and* **Not aware** *from 19.6% (UOM) to 61.6 (UPKM);* **Poverty Reduction Strategy (PRS) with water resources management component** *-* **Fully aware** *vary from 1.3% (UPKM) to 18.6% (UNI),* **Partially aware** *from 21.9% (UPKM) to 65.4% (UOM) and* **Not aware** *from 23.6% (UNI) to 76.8 (UPKM);* **National Strategy for Sustainable Development** *-* **Fully aware** *vary from 7.2% (UOM) to 25.2% (UNS),* **Partially aware** *from 48.5% (UNS) to 84.1% (UPKM) and* **Not aware** *from 8.6% (UPKM) to 36.4 (UNMO);* **National Development Plan with water resources management component** *-* **Fully aware** *vary from 2% (UPKM) to 19.9% (UNI),* **Partially aware** *from 19.2% (UPKM) to 63.8% (UNSA) and* **Not aware** *from 19.2% (UNSA) to 78.8 (UPKM);* **National Environmental Action Plan water resources management component** *-* **Fully aware** *vary from 3.3% (UPKM) to 22.7% (UNS),* **Partially aware** *from 15.2% (UPKM) to 62.7% (UNSA) and* **Not aware** *from 16.8% (UNI) to 81.5 (UPKM);* **National climate change adaptation policy/strategy/plan with water resources management component** *-* **Fully aware** *vary from 2% (UPKM) to 29.8% (UNI),* **Partially aware** *from 15.2% (UPKM) to 58.2% (UNSA) and* **Not aware** *from 16.8% (UNI) to 82.8 (UPKM);* **National Agricultural Plan with water resources management component** *-* **Fully aware** *vary from 0% (UPKM) to 27.3% (UNI),* **Partially aware** *from 15.9% (UPKM) to 49.1% (UNI) and* **Not aware** *from 23.6% (UNI) to 84.61 (UPKM);* **National energy policy/strategy/plan with water resources management component** *-* **Fully aware** *vary from 1.3% (UOM, UPKM) to 27.3% (UNI),* **Partially aware** *from 15.9% (UPKM) to 58.8% (UNSA) and* **Not aware** *from 21.7% (UNI) to 82.8 (UPKM);* **National desertification policy/strategy/plan with water resources management component** *-* **Fully aware** *vary from 0.6% (UNSA) to 21.1% (UNI),* **Partially aware** *from 17.2% (UPKM) to 54% (UNI) and* **Not aware** *from 24.8% (UNI) to 82.1 (UPKM);* **National wetland policy/strategy/plan with water resources management** *component -* **Fully aware** *vary from 0.7% (UPKM) to 18.4% (UNS),* **Partially aware** *from 11.3% (UPKM) to 55.3% (UNI) and* **Not aware** *from 28% (UNI) to 88.1 (UPKM); and on* **National biodiversity policy/strategy/plan with water resources management component** *-* **Fully aware** *vary from 0.7% (UPKM) to 16.6% (UNS),* **Partially aware** *from 15.2% (UPKM) to 58.4% (UNI) and* **Not aware** *from 29.8% (UNIM) to 84.1 (UPKM). The answers to this question are different and vary in a wide range.*

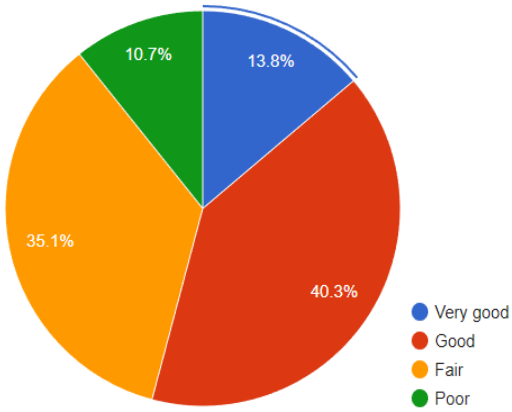
The next question was aimed to understand the level of water resources management involvement in the organizations on the ground.

- According to you, what is the level of compliance in your organization as regards to various actions described in the table below? Please tick, as you feel appropriate.

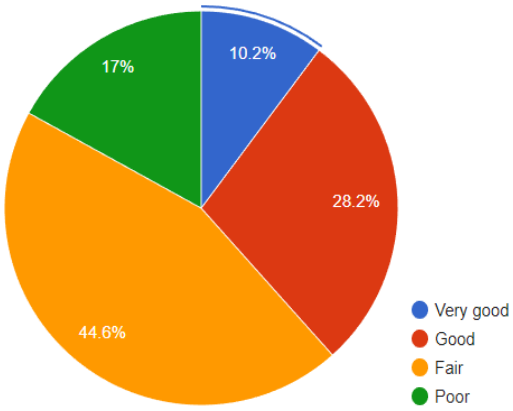
— Groundwater management program



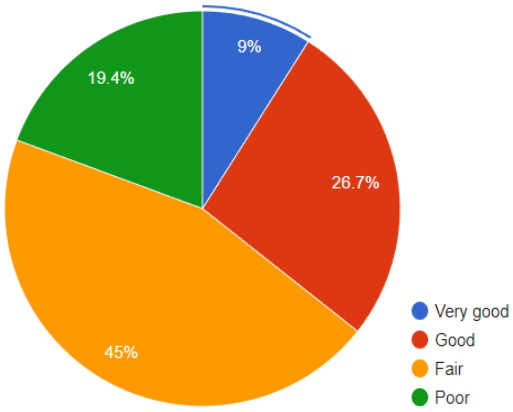
— Surface management program



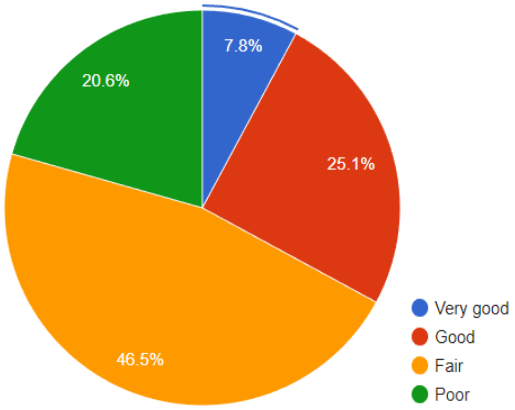
— Linked ground and surface water management program



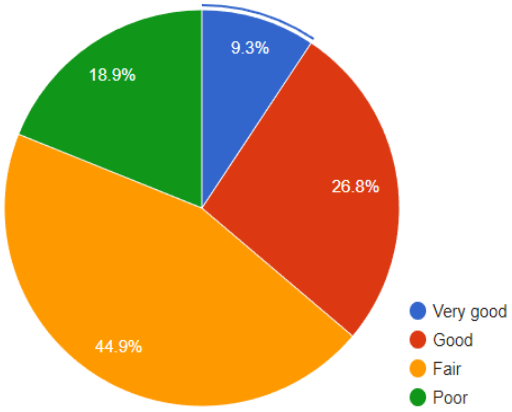
— Programs for efficient allocation of water resources among competing uses



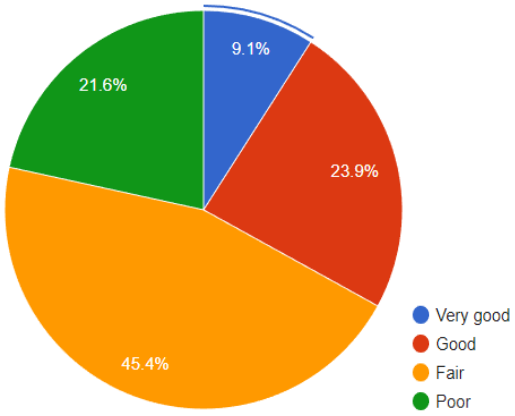
— Land/natural resources management programs that include water resources management components



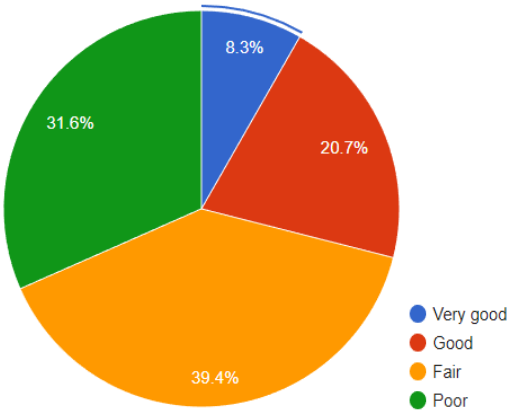
— Programs for allocating water resources that include environmental considerations



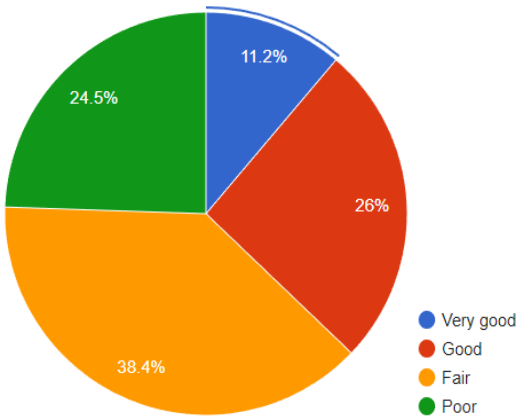
— Demand management measures to improve water use efficiency in all sectors



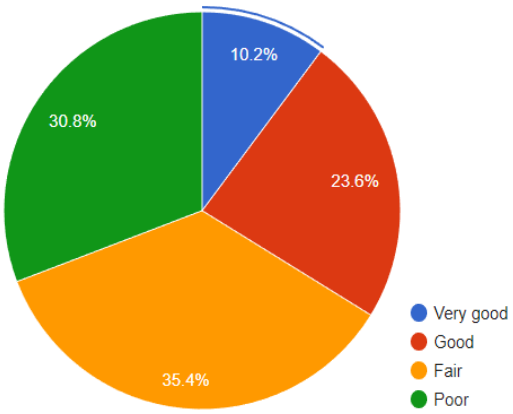
— Program for re-use or recycling of water



— Programs to evaluate environmental impacts of water projects



— Programs to address water-related disasters (e.g. floods and droughts)



Based on the results of this survey in total, the level of compliance in participant's organization as regards to various actions are very similar: the most of participants marked ***good*** *and* ***fair*** *as answer, than* ***poor****, and* ***very good*** *is at least. The survey results are as following:* ***Groundwater management program*** *– 40.1% of participants marked* ***fair****, 33.1% marked* ***good****, 16%* ***poor****, 10.7%* ***very good****;* ***Surface management program*** *– 40.3% of participants marked* ***good****, 35.1% marked* ***fair****, 13.8%* ***very good****, 10.7%* ***poor****;* ***Linked ground and surface water management program*** *– 44.6% of participants marked* ***fair****, 28.2% marked* ***good****, 17%* ***poor****, 10.2%* ***very good****;* ***Programs for efficient allocation of water resources among competing uses*** *– 45% of participants marked* ***fair****, 26.7% marked* ***good****, 19.4%* ***poor****, and at least 9%* ***very good****;* ***Land/natural resources management programs that include water resources management components*** *– 46.5% of participants marked* ***fair****, 25.1% marked* ***good****, 20.6%* ***poor****, and 7.8%* ***very good****;* ***Programs for allocating water resources that include environmental considerations*** *– 44.9% of participants marked* ***fair****, 26.8% marked* ***good****, 18.9%* ***poor****, 9.3%* ***very good****;* ***Demand management measures to improve water use efficiency in all sectors*** *– 45.4% of participants marked* ***fair****, 23.9% marked* ***good****, 21.6%* ***poor****, 9.1%* ***very good****;* ***Program for re-use or recycling of water*** *– 39.4% of participants marked* ***fair****, 31.6% marked* ***poor****, 20.7%* ***good****, and 8.3%* ***very good****;* ***Program to evaluate environmental impacts of water projects*** *– 38.4% of participants marked* ***fair****, 26% marked* ***good****, 24.5%* ***poor****, and 11.2% of participants marked* ***very good****;* ***Program to address water-related disasters (e.g. floods and droughts)*** *– 35.4% of participants marked* ***fair****, 30.8% marked* ***poor****, 23.6%* ***good****, and 10.2%* ***very good.***

Comparing the results between the high educational institutions that initiated the survey we have the following: ***Groundwater management program*** *– the answer* ***very good*** *vary from 1.3% (UPKM) to 28.2% (UNS),* ***good*** *from 15.9% (UPKM) to 51.6% (UNI),* ***fair*** *from 21.1% (TCASU) to 68.9% (UPKM), and* ***poor*** *from 6.2% (UNSA) to 38.2% (TCASU);* ***Surface management program*** *–* ***very good*** *from 2.6% (UOM) to 30.1% (UNS),* ***good*** *from 27.2% (UNMO) to 72.2% (UPKM),* ***fair*** *from 19.2% (UPKM) to 61.4% (UOM), and* ***poor*** *from 2.3% (UNSA) to 27.6% (TCASU);* ***Linked ground and surface water management program*** *–* ***very good*** *vary from 2% (UOM) to 23.3% (UNS),* ***good*** *from 8.6% (UPKM) to 44.8% (UNS),* ***fair*** *from 25.2% (UNS) to 73.5% (UPKM), and* ***poor*** *from 6.7% (UNS) to 31.6% (TCASU);* ***Programs for efficient allocation of water resources among competing uses*** *–* ***very good*** *vary from 2.6% (UPKM) to 19% (UNS),* ***good*** *from 13.9% (UPKM) to 38.5% (UNI),* ***fair*** *from 33.1% (UNS) to 75.5% (UPKM), and* ***poor*** *from 7.9% (UPKM) to 30.7% (UOM);* ***Land/natural resources management programs that include water resources management components*** *–* ***very good*** *from 1.3% (UOM) to 16% (UNS),* ***good*** *from 13.9% (UPKM) to 40.5% (UNS),* ***fair*** *from 31.3% (UNS) to 74.8% (UPKM), and* ***poor*** *from 9.3% (UPKM) to 34% (UOM);* ***Programs for allocating water resources that include environmental considerations*** *–*

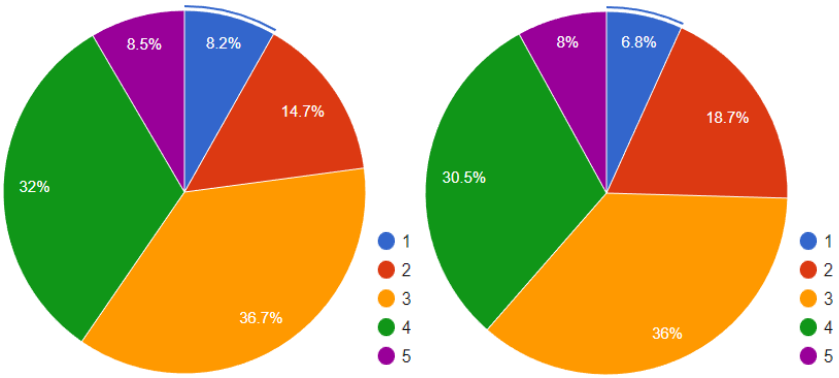
very good *from 2% (UOM) to 20.2% (UNS),* ***good*** *from 13.7% (UOM) to 39.9% (UNS),* ***fair*** *from 29.4% (UNS) to 70.2% (UPKM), and* ***poor*** *from 7.9% (UPKM) to 31.6% (TCASU);* ***Demand management measures to improve water use efficiency in all sectors*** *–* ***very good*** *from 2.6% (UPKM) to 18.4% (UNS),* ***good*** *from 9.2% (UOM) to 39.9% (UNS),* ***fair*** *from 31.6% (TCASU) to 74.2% (UPKM), and* ***poor*** *from 7.9% (UPKM) to 38.6% (UOM);* ***Program for re-use or recycling of water*** *–* ***very good*** *vary from 3.3% (UOM) to 22% (UNSA),* ***good*** *from 7.9% (UPKM) to 42.4% (UNSA),* ***fair*** *from 29.5% (UNMO) to 62.9% (UPKM), and* ***poor*** *from 1.7% (UNSA) to 45.8% (UOM);* ***Program to evaluate environmental impacts of water projects*** *– the answer* ***very good*** *vary from 3.3% (UPKM) to 20.2% (UNS),* ***good*** *from 10.5% (UOM) to 36.2% (UNS),* ***fair*** *from 27% (TCASU) to 68.9% (UPKM), and* ***poor*** *from 11% (UNS) to 55.6% (UOM);* ***Program to address water-related disasters (e.g. floods and droughts)*** *–* ***very good*** *vary from 2.6% (UOM) to 22.7% (UNS),* ***good*** *from 6.5% (UOM) to 38% (UNS),* ***fair*** *from 18.3% (UOM) to 74.2% (UPKM), and* ***poor*** *from 7.3% (UPKM) to 72.5% (UOM). The results show a high range of diversity between the HEI's.*

Fourth group of questions: Training Need

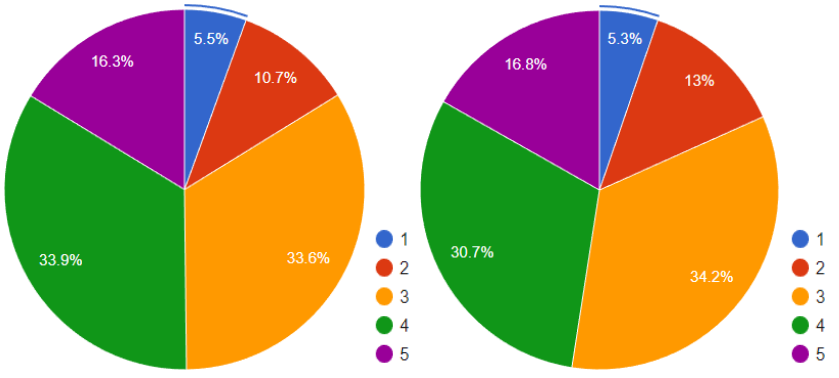
In order to assess the training needs, the questions were asked in two directions: the participants were evaluating also their colleagues.

- Please read each of the abilities carefully and rate yourself and your colleagues on the same on the basis of five point rating scale. (Five is the highest and one is lowest)

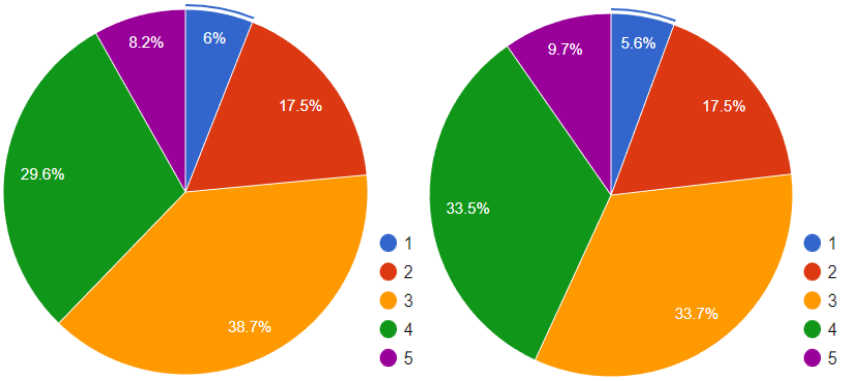
  Understanding WRM procedures (self/colleague)



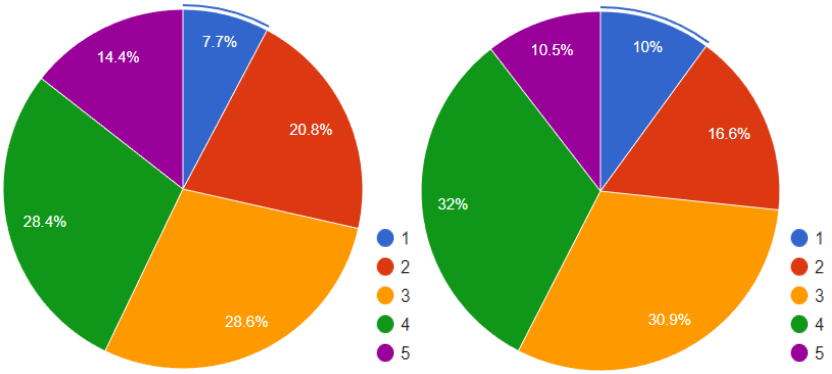
  Technical & Engineering aspects (self/colleague)



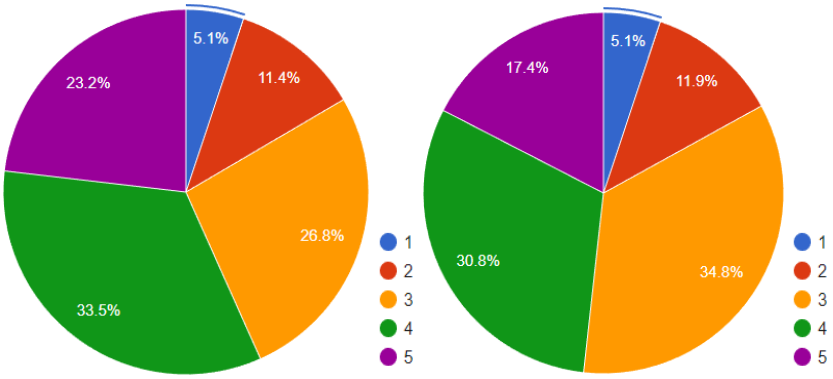
Institutional aspects (self/colleague)



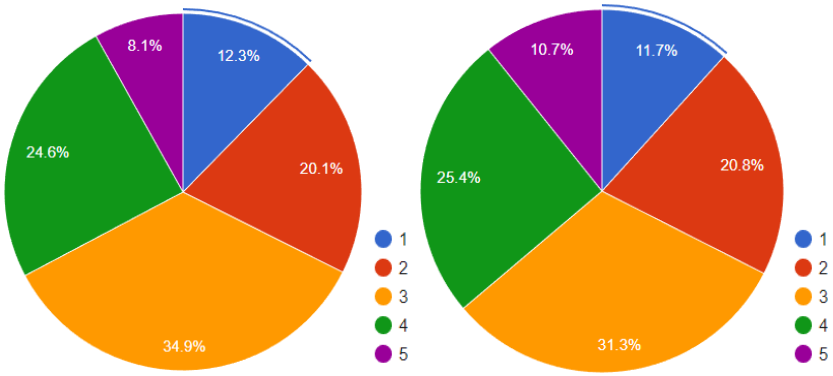
Supervision and Coordination (self/colleague)



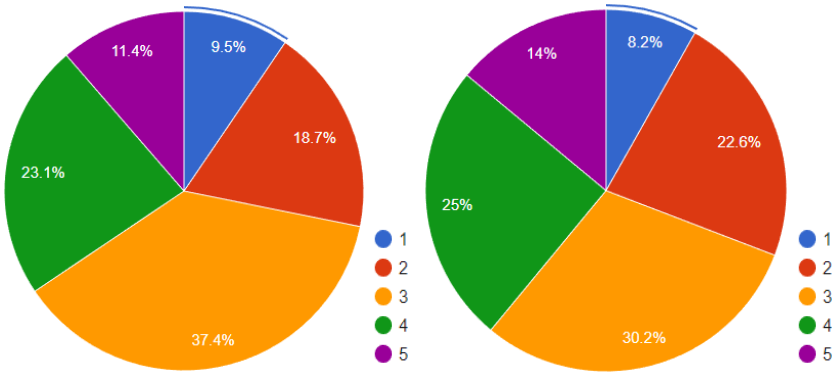
Computer Applications (self/colleague)



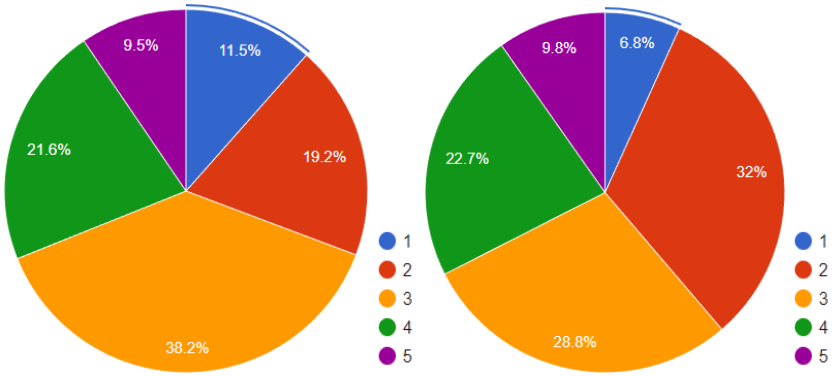
Budgeting & Costing for WRM (self/colleague)



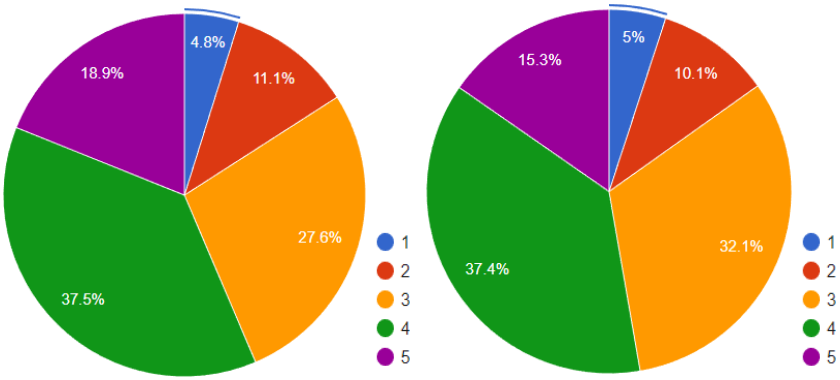
Contracting mechanisms (self/colleague)



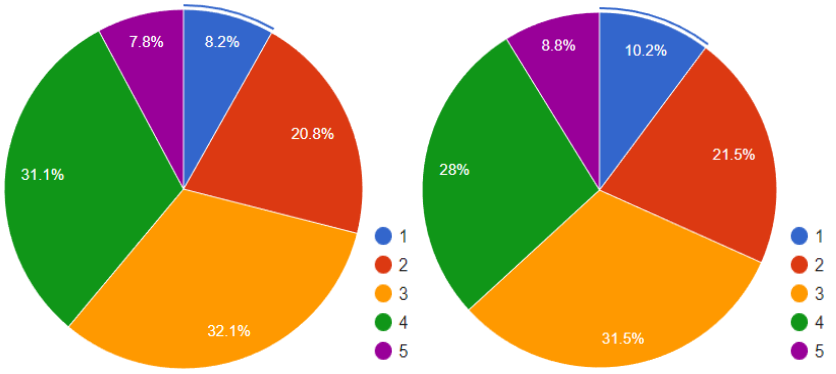
Training & Capacity Building (self/colleague)



Communication Skills (self/colleague)

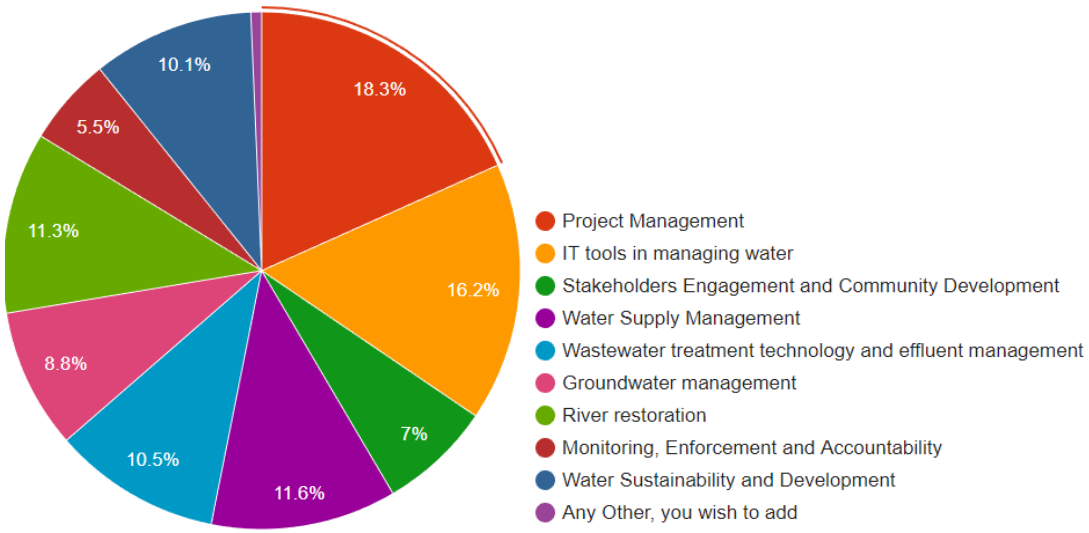


Integrated water resources management (self/colleague)



The results of self-evaluation of participants and colleagues are almost the same, i.e. with insignificant variations. The main marks, which dominate, are 4 and 3, while mark 1 mainly has the smallest percentage of examinees.

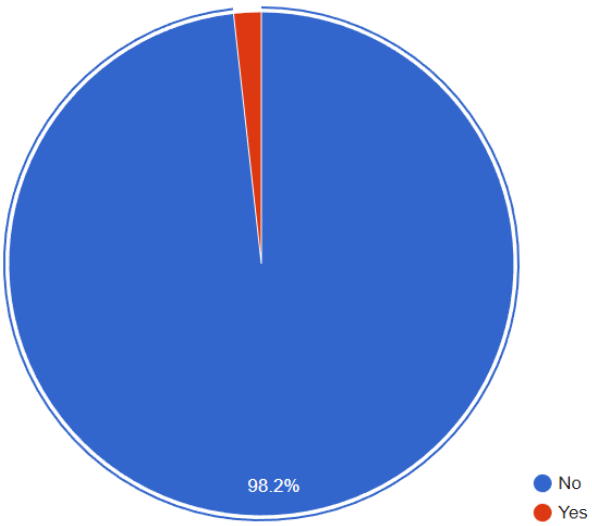
- Please indicate the areas of training needs for you and colleagues in your category to increase the competencies in managing WM services. You may tick more than one.



According to the survey results the most wanted training is in ***Project management*** *(18.1%), than* ***IT tools in managing water*** *(16.1%). Third most needed is* ***Water supply management*** *(12.5%), than* ***River restoration*** *(11.2%),* ***Water Sustainability and Development*** *(9.8%),* ***Wastewater treatment technology and effluent management*** *(9.5%) and* ***Groundwater management*** *(7.8%). Participants show small interest for other courses.*

Differences between the results of the examinees from the HEI's in the areas of training needs to increase the competencies in managing WM services, are as following: ***Project Management*** *vary from 11.9% (UOM) to 29.1% (UNI);* ***IT tools in managing water*** *from 14.6% (UNSA) to 19.1% (UPKM);* ***Stakeholders Engagement and Community Development*** *from 2% (UPKM) to 13.1% (UNI);* ***Water Supply Management*** *from 7.4% (UNI) to 16.4% (UOM);* ***Wastewater treatment technology and effluent management*** *vary from 4.8% (UNI) to 15.5% (UPKM);* ***Groundwater management*** *from 6.4% (UNI) to 11.4% (UPKM);* ***River restoration*** *from 7.1% (UNI) to 14.3% (UNSA);* ***Monitoring, Enforcement and Accountability*** *from 3.1% (UNSA) to 7.4% (UNS);* ***Water Sustainability and Development*** *from 7.3% (UOKM) to 17.8% (UNSA);* ***Any Other*** *from 0% (UPKM) to 1.4% (TCASU). Small variation between the percent of the results shows significant agreement of the participants, and based on this survey it can be concluded which are the most desirable trainings:* ***Project management***, ***IT tools in managing water***, ***Water supply management***, ***River restoration*** *and* ***Water Sustainability and Development****.*

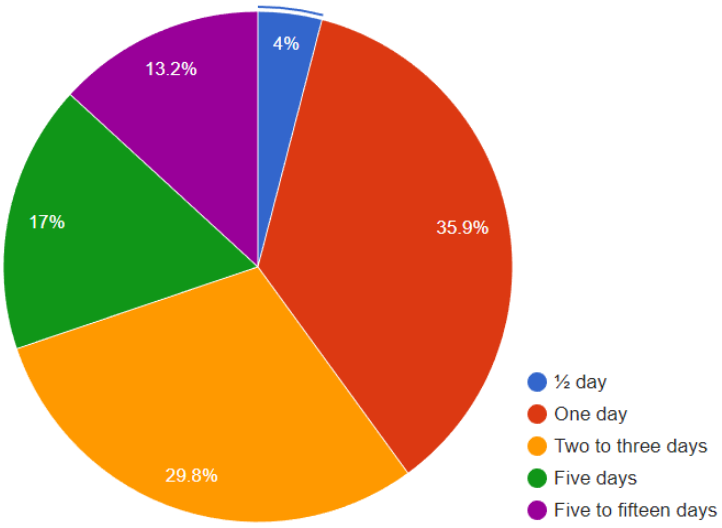
- Have you or anyone of your colleagues received training on the subject of WM? If yes, please provide details.



Results showed that almost all participants in survey and their colleagues have not any training related with Water Management.

Similar results can be seen if we compare the range of percent between institutions: 96-100% of the respondents chose the answer ***No****, and the opposite 0-4% chose the answer* ***Yes****.*

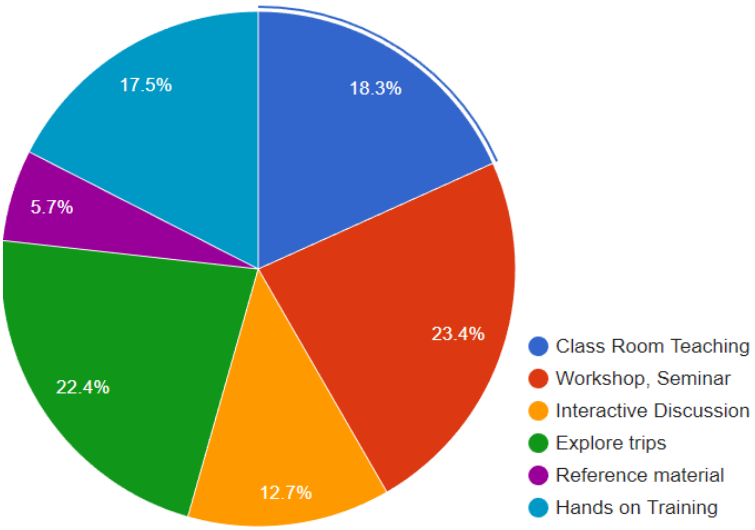
- Please suggest the duration of training for your group. Please tick appropriate.



As per results, the most of the respondents suggested that training should have duration of ***one day*** *(40.4%), and 26.7% were ready to have* ***two or three days*** *of training. Percent of participants who suggest that the duration of trainings should be* ***Five days*** *is 16.5%, and then the duration of training* ***Five to fifteen days*** *(12.7), and at the end was* ***half day*** *duration of training (3.8%).*

Answers of the respondents regarding to the duration of training shows that most desirable training duration are ***one day*** *or* ***two to three days****. Differences between institutions are as following:* ***half day*** *duration of training – from 0.7% (UOM) to 7.3% (UNSA);* ***one day*** *training from 0.7% (UOM) to 61.6% (UPKM);* ***two to three days*** *training from 14.4% (UOM) to 42.3% (UNS);* ***five days*** *training from 6% (UPKM) to 38.6% (UOM);* ***five to fifteen days*** *training from 3.3% (UPKM) to 45.8% (UOM);*

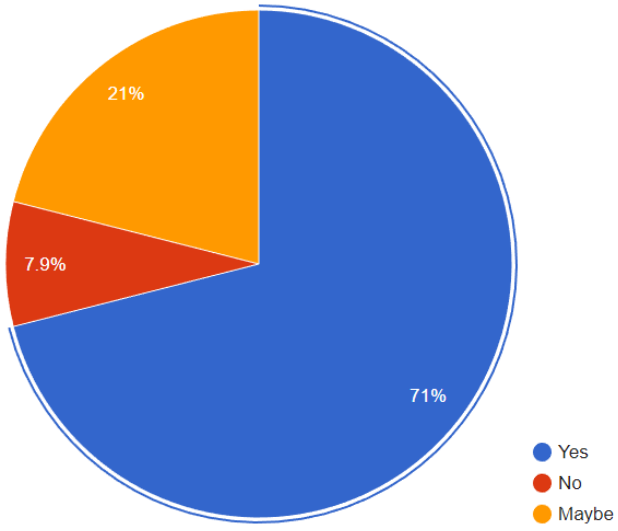
- What is your preferred mode of training? You may tick more than one.



Regarding to mode of training, the most appropriate solution for the participant was Workshop, seminar (23.2%), then Explore trips (20.5%), Class room teaching (19.2%), and Hands on Training (17.5%). Interactive discussion and Reference material were the least wanted mode of training.

Differences between answers of respondents are as following: ***Class room teaching*** *from 12.3% (UOM) to 24% (UNMO),* ***Workshop, seminar*** *from 9% (UOM) to 30.8% (UNSA),* ***Interactive discussion*** *from 3.2% (UPKM) to 18.4% (UNSA),* ***Explore trips*** *from 12.4% (UNMO) to 34.1% (UOM),* ***Reference material*** *from 1.9% (UNSA) to 8.2% (UNS), and* ***Hands on Training*** *from 8.1% (UNI) to 35.2% (UOM). Our surveys show that the most appropriate mode of training are* ***Workshop, seminar***, ***Explore trips***, *and* ***Class Room teaching****.*

- Are you willing to go to a certified training institution for receiving training on the identified areas of improvements for WM?

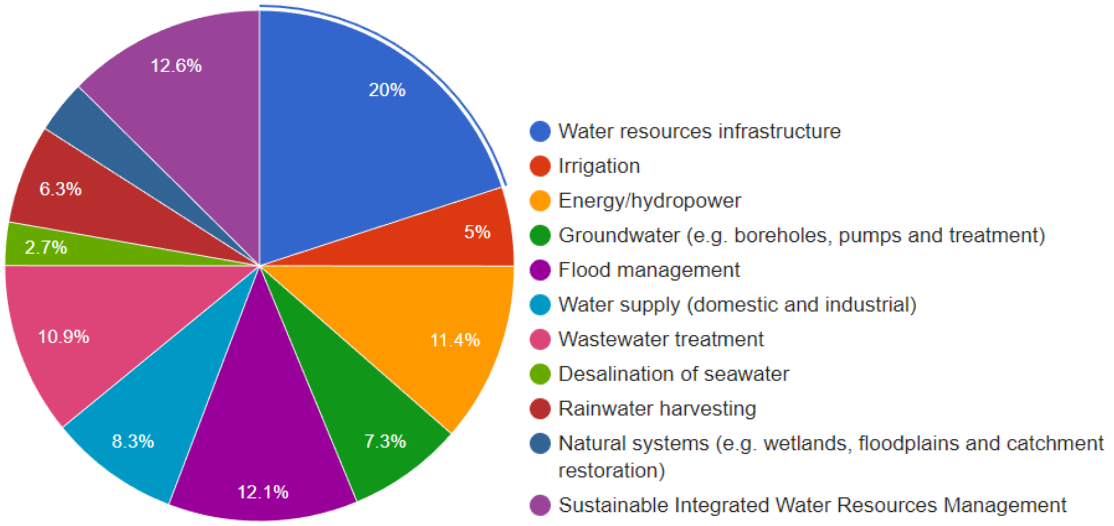


Results showed that most of participants in survey chose the answer ***Yes*** *(71%), than the answer* ***Maybe*** *(21%), and as last one the answer* ***No*** *(7.9%).*

Differences between the HEI's are as following: for the answer ***Yes*** *from 50.9% (UNMO) to 86.3% (UOM),* ***No*** *from 2% (UPKM) to 17.2% (UNS), and for* ***Maybe*** *from 9.8% (UOM) to 39.3% (UNMO). The most of participants will go to a certified training institution for receiving training on the identified areas of improvements for WM.*

Fifth group of questions: Technical Training

- Indicate your preferable technical training. You may tick more than one.



According to the questionnaire, Water resources infrastructure is the technical training having the greatest interest, i.e. for this kind of training 20% of respondents are interested in. Sustainable Integrated Water Resources Management is on the second place of respondents' interest, but only 12.6% of people are interested in it. What is more, ***Flood Management***, ***Energy/hydropower*** *and* ***Wastewater treatment*** *trainings are represented with approximately the same percentage (≈ 11 %). The lowest interest for trainings are for* ***Desalination of seawater*** *and for* ***Natural systems (e.g. wetlands, floodplains and catchment restoration)****, there is around 3 % of respondents for each training.*

Variations in the answers between HEI's are as following: ***Water resources infrastructure*** *– from 12.6% (UNS) to 35-6% (UNI),* ***Irrigation*** *– from 1.5% (UOM) to 10% (UNI),* ***Energy/hydropower*** *– from 7% (UNSA) to 15.5% (UOM),* ***Groundwater (e.g. boreholes, pumps and treatment)*** *– from 3% (UNSA) to 13.6% (UPKM),* ***Flood management*** *– from 7% (UNI) to 20.5% (UNSA),* ***Water supply (domestic and industrial)*** *– from 2% (UNI) to 15% (UOM),* ***Wastewater treatment*** *– from 6.8 (UNSA) to 13.8% (UNS),* ***Desalination of seawater*** *– from 1.1% (UPKM) to 9.1% (UNS),* ***Rainwater harvesting*** *– from 4.1% (UPKM) to 10.8% (UOM),* ***Natural systems (e.g. wetlands, floodplains and catchment restoration)*** *– from 1.6% (UPKM) to 6.1% (UNS), and* ***Sustainable Integrated Water Resources management*** *– from 8.8% (UOM) to 18.7% (UNSA).*

3.9.2 Survey conclusion

The first set of questions about the operations performed in the organizations in the area of water management showed that in the region of Western Balkan, there are actions of **Technical & Engineering aspects**, **Planning & Scheduling**, **Budgeting, Costing and other Finance Aspects**, and **Field Supervision** in the field of water resources management within the regional and local water companies and local administration. On the other hand, **Public Interaction and Compliant Redress**, **Legal Aspects**, **Enhancing Community Participation**, and **Staff Management, Control** are neglected and addressed in smaller portions from 3-5%.

When it comes to the awareness of the strategic documents and policies there is the highest awareness of **National Water Law, Policy or Strategic Plan**, then comes the **Regional Water Law, Policy or Strategic Plan**, and finally **EU Water Framework Directive and EU policy on water**. According to the results, the participants showed some awareness about other national instruments that may incorporate Water Resources Management as: **National Strategy for Sustainable Development**, **Integrated national policy/strategy/plan for land and water resources management**, **National Development Plan with water resources management component**, and **National Environmental Action Plan water resources management component**, and no awareness of the **National wetland policy/strategy/plan with water resources management component**, **National biodiversity policy/strategy/plan with water resources management component**, **National desertification policy/strategy/plan with water resources management component**, and **National Agricultural Plan with water resources management component**. The level of compliance of the organization with the actions from **Water resources management is the best in Surface water management**, **Programs to evaluate environmental impacts of water projects**, and **Groundwater management program**. On the other side, the low level of compliance are with **Program for re-use or recycling of water**, **Programs to address water-related disasters (e.g. floods and droughts)**, and **Programs to evaluate environmental impacts of water projects**.

In the personal evaluation part, the best results were obtained in the engineering aspects, meaning that the most of the participants were engineers or technicians, who at the same time are also in charge with supervision and coordination as department managers. They need IT tools application training, Project management, Water supply and Waste water management, and are reluctant toward Stakeholders engagement and Community Development trainings. They will attend one-day training in the accredited institution, in the form of field trips, workshops and seminars trainings in the Water resources infrastructure, Sustainable Integrated Water Resources management, Flood management, Energy/hydropower, and Wastewater treatment.

4 General conclusions and recommendations

The survey of the public companies for LLL courses in Water Resources Management were conducted up to 20th May 2019 on 1136 respondents. The following Western Balkan HEI's participated in the survey: University of Nis (UNI), University of Novi Sad (UNS), University of Priština in Kosovska Mitrovica (UPKM), Technical College of Applied Sciences Uroševac (TCASU), University of Sarajevo (UNSA), "Džemal Bijedić" University of Mostar (UNMO), University of Montenegro (UoM), and Public water management company "Vode Vojvodine" (PWMC VV). The number of respondents per institution is given in Table 1. All institutions have met the target on the number of participants in the survey (150 per HEI), which is in accordance with the project application. As it is described in Chapter 2 of this Report, the survey consisted of 12 questions divided into 5 groups. The first group of questions is related to general details of respondents.

Since the survey aimed to estimate the level of knowledge about the issue of Sustainable Water Resources Management among the professionals in either public or private entities, awareness on the strategic documents, action plans and procedures, and experience in applying the best procedures in water management, the first question was aimed to establish the participation of water management in their operations. As it can be seen from separately reports, depending on the HEI's that initiated the survey, the results vary significantly in some cases, but group of questions called **Job Responsibilities as regards to Water Management in the organization**, indicates that additional efforts have to be made in reducing the percentage of people who almost do not devote time (0 – 20% of time) or devote a little of their time (20 – 40% of time) to Water Resources Management. These two groups cover 55.6% of respondents in total. The respondents' responsibilities in Water Management are quite well-targeted, because three key activities (Planning and Scheduling; Field Supervision and Technical and Engineering Aspects) are represented with 50.1% of all activities. Also, it is important to improve the responsibilities in other activities, such as: Public Interaction and Compliant Redress, Legal Aspects, and Enhancing Community Participation.

In the third group of questions: **Awareness, Knowledge to Water Resources Management Policy**, the professionals in the water management were asked about the Water Resources Management Policy and its instruments in implementing the best practices in Water Management. The survey shows that there are a big percentage of respondents who are not aware of the instruments for Water Resources Management. This could be one of the topics for LLL courses that would be prepared.

The survey results related to **Training Need** clearly highlighted that there is a great needs for improvement of previously acquired knowledge and for improvement of practical skills at people in water sector. Also, the results show that there is a great interest of water experts to have quality training, in duration of **one, two or three days**. Trainings will be organized as Workshop, Seminar and Explore trips. The areas of training needs which are of most interest of people in water sector are: **Project Management**, **IT tools in managing water**, **Water Supply Management**, **River restoration**, **Wastewater treatment technology and effluent management**, and **Water Sustainability and Development**. Also, the preferable technical training are: **Water resources infrastructure**, **Sustainable Integrated Water Resources management**, **Flood management**, **Energy/hydropower**, and **Wastewater treatment.** Based on these conclusions, resulted from this survey, further activities should be directed towards the preparation of training for professionals within life-long learning program.

5 Annex 1 – Online survey

Co-funded by the Erasmus+ Programme of the European Union

Dear all,
Water is more and more significant resource, and there is increasing need nowadays for maximum usage of the water resource. This need has emerged after it was clear that water quality has a decreasing trend, as a consequence of constant and raising pollution, climatic changes and extreme space/time misbalance. Maximum water resource usage efficiency involves its efficient management, maximum efficiency of the hydrological potential of the water bodies (construction of the accumulations in a series), while the other sectors i.e. tourism, water supply, agriculture, energy, with optimal management of these system can achieve sustainability and safety regarding certain parameters.

In order to educate experts for water management resources in Western Balkans countries, in line with national and EU Policy, SWARM project no. 597888-EPP-1-2018-RS-EPPKA2-CBHE-JP for the master curriculum development in water resource management in Western Balkans HEIs, has been launched within ERASMUS+ Programme the European Union.

The purpose of this questionnaire is to define the themes for the water resource courses, in the framework of Lifelong Learning (LLL) activities.

We would like to kindly ask you to read all the questions very carefully and to express your attitudes by choosing the appropriate answer.

The survey is anonymous and all the data from this questionnaire will be used exclusively for the scientific analysis. Participation in the survey is on voluntary basis.

MAKE SURE THAT THE OPINION OF EACH INDIVIDUAL IS VERY IMPORTANT!

1 2 3 4 5

General details

University: Select your option
Gender: Select your option
Age:
Level of education: Select your option
Employment sector: Select your option
The institution where you are employed:
Position:
Number of years of Experience:
Comment:

Job Responsibilities as regards to Water Management in the organization

In your present position, how much time do you devote for carrying work related to Water Resources Management? Select your option

In your present position, what are your responsibilities for Water Resources Management? You may tick more than one.

Planning & Scheduling
Budgeting, Costing and other Financial Aspects
Field Supervision
Coordination & Meetings
Technical & Engineering Aspects
Training & Capacity Building
Communication
Staff Management, Control
Public Interaction and Complaint Redress
Legal aspects
Enhancing Community Participation
Any Other

1 2 3 4 5

Awareness, Knowledge to Water Resources Management Policy

How aware are you of the instruments for Water Resources Management?

EU Water Law, Policy or Strategic Plan Select your option
National Water Law, Policy or Strategic Plan Select your option
Regional Water Law, Policy or Strategic Plan Select your option

Are you aware of the other national instruments that may incorporate Water Resources Management?

Integrated national policy/strategy/plan for land and water resources management Select your option
Poverty Reduction Strategy (PRS) with water resources management component Select your option
National Strategy for Sustainable Development Select your option
National Development Plan with water resources management component Select your option
National Environmental Action Plan water resources management component Select your option
National climate change adaptation policy/strategy/plan with water resources management component Select your option
National Agricultural Plan with water resources management component Select your option
National energy policy/strategy/plan with water resources management component Select your option
National desertification policy/strategy/plan with water resources management component Select your option
National wetland policy/strategy/plan with water resources management component Select your option
National biodiversity policy/strategy/plan with water resources management component Select your option

1 2 3 4 5

According to you, what is the level of compliance in your organization as regards to various actions described in the table below? Please tick, as you feel appropriate.

Groundwater management program Select your option
Surface management program Select your option
Linked ground and surface water management program Select your option
Programs for efficient allocation of water resources among competing uses Select your option
Land/natural resources management programs that include water resources management components Select your option
Programs for allocating water resources that include environmental considerations Select your option
Demand management measures to improve water use efficiency in all sectors Select your option
Program for re-use or recycling of water Select your option
Programs to evaluate environmental impacts of water projects Select your option
Programs to address water-related disasters (e.g. floods and droughts) Select your option

Training Need

Please read each of the abilities carefully and rate yourself and your colleagues on the same on the basis of five point rating scale. (Five is the highest and one is lowest)

	Self	Colleague
Understanding WRM procedures	Select your option	Select your option
Technical & Engineering aspects	Select your option	Select your option
Institutional aspects	Select your option	Select your option
Supervision and Coordination	Select your option	Select your option
Computer Applications	Select your option	Select your option
Budgeting & Costing for WRM	Select your option	Select your option
Contracting mechanisms	Select your option	Select your option
Training & Capacity Building	Select your option	Select your option
Communication Skills	Select your option	Select your option
Integrated water resources management	Select your option	Select your option

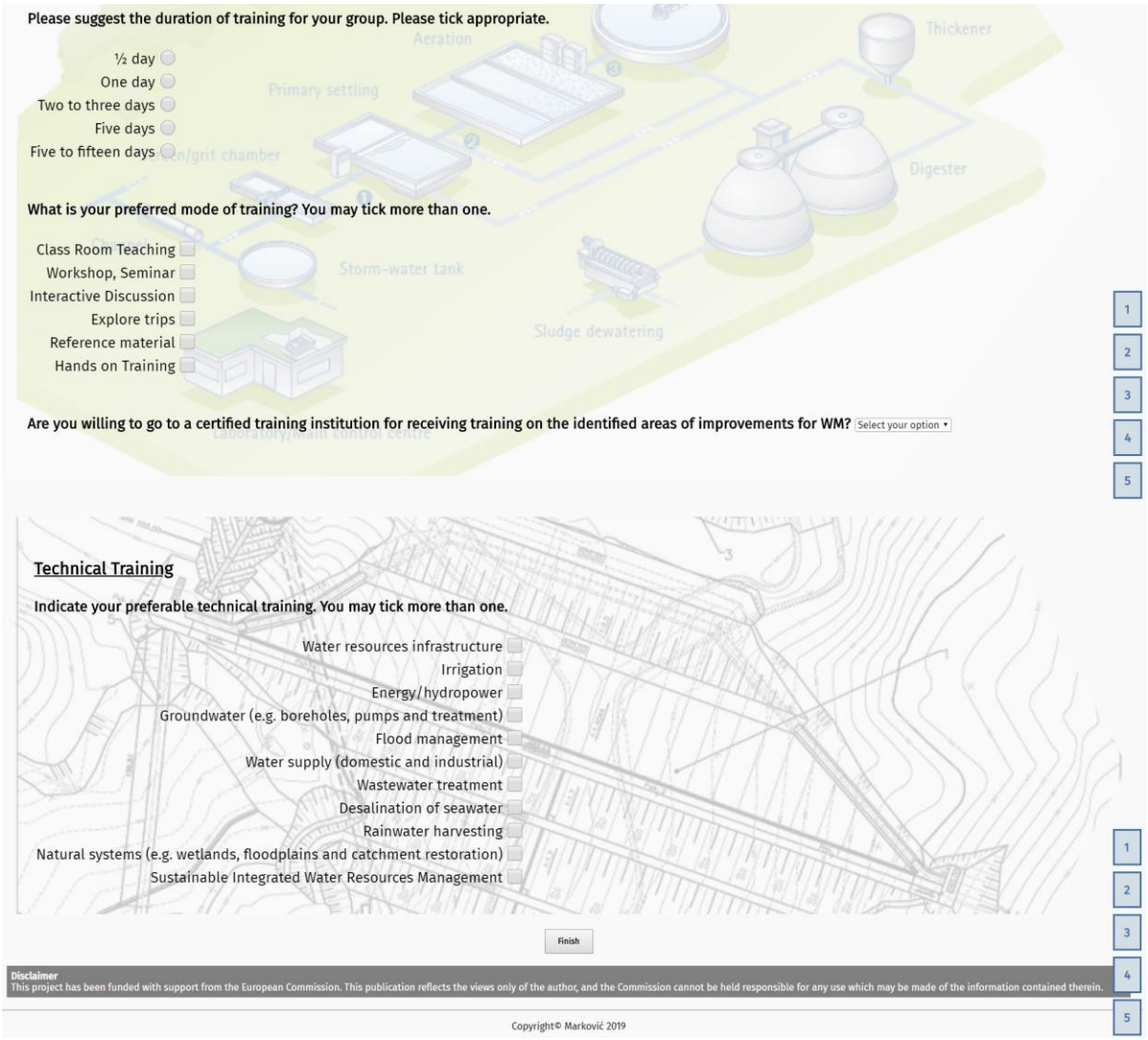
Please indicate the areas of training needs for you and colleagues in your category to increase the competencies in managing WM services. You may tick more than one.

National, Sub-national and International Water Resources Policy
Project Management
IT tools in managing water
Stakeholders Engagement and Community Development
Water Supply Management
Wastewater treatment technology and effluent management
Groundwater management
River restoration
Monitoring, Enforcement and Accountability
Water Sustainability and Development
Any Other, you wish to add

Have you or any one of your colleagues received training on the subject of WM? If yes, please provide details.

Name & Designation of Staff/s
Name of Institution/s
Subject/Topic/s
Duration
Period

1 2 3 4 5



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