

The gender disaggregated reporting of the 5.1 answers from the SQAPP test persons from the different study sites, is hereby attached in summary, as an additional chapter to the deliverable 5.1 (D 5.1)(CDE 2019).

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Here I want to thank Abdallah and Tatenda for the elaborate gender disaggregated questionnaire and the results in the data Excel file. And of course many thanks to the iSQAPER study sites (Slovenia, Romania, Spain, Portugal, Estonia, Greece, France and Poland) that helped to gather the stakeholders to test the SQAPP and respond to the questions. There were a lot of questions to be answered, which must have asked a lot of patience from the stakeholders as well as the study site leaders. And last but not least Rob for supporting me with the statistical tests on significance of the gender data.

## Introduction

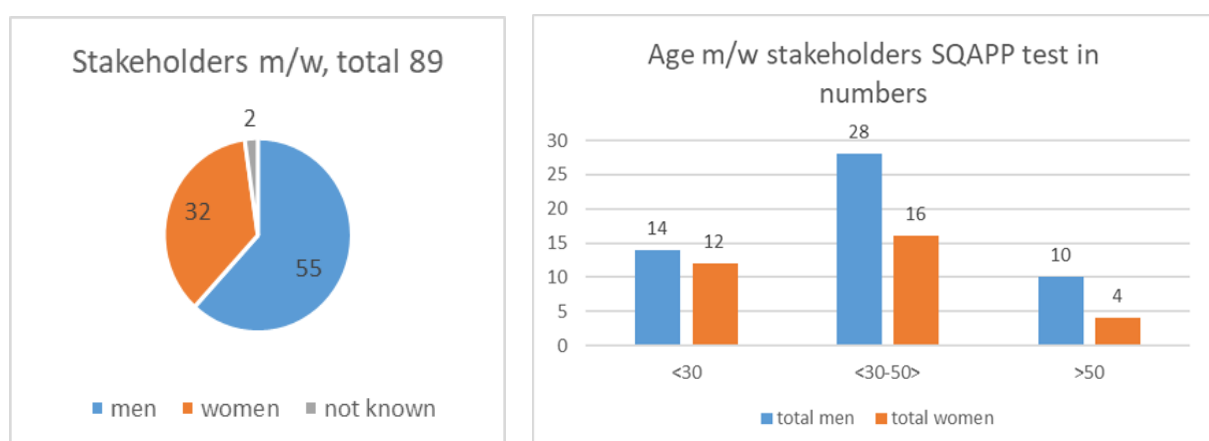
To make a useful application for land management options and keeping the soil in a good condition and quality, a gender disaggregated stakeholder test was applied by making use of the selected stakeholder test from WP5. In WP 5 one looked at the answers as totals. Now, for the gender equality research, the answers were looked at separately, the differences in replies between men and women.

In the questionnaire for a sample of SQAPP testers, the numbers of testers was lower, but the percentage of involved women was 30%. Since there were 55 men and 32 women SQAPP test respondents, we did some quantitative tests on gender significance. We got some significance, but the explanation is still a guess. The results were generally applied in the B version of the SQAPP.

By receiving the results from the CDE stakeholder **SQAPP user feedback** test, which was gender disaggregated, it was made possible to see the gender equality and gender differences on the different aspects. I'll show you first the numbers, their age categories (1), the gender diversity per involved country, their roles (2), then, the gendered nuances in the expectations of the SQAPP (3), the satisfaction of the (m/w) stakeholders on the soil properties chapter (4), the gender significance concerning a few soil threats (5), the results on the "practices provided", and whether their expectations are being fulfilled or not (6). And finally conclusions (7). The SQAPP was not transferred in a Chinese version at the time of the testing, so the feedback is from the European iSQAPER study sites.

### 1 Numbers and age stakeholders

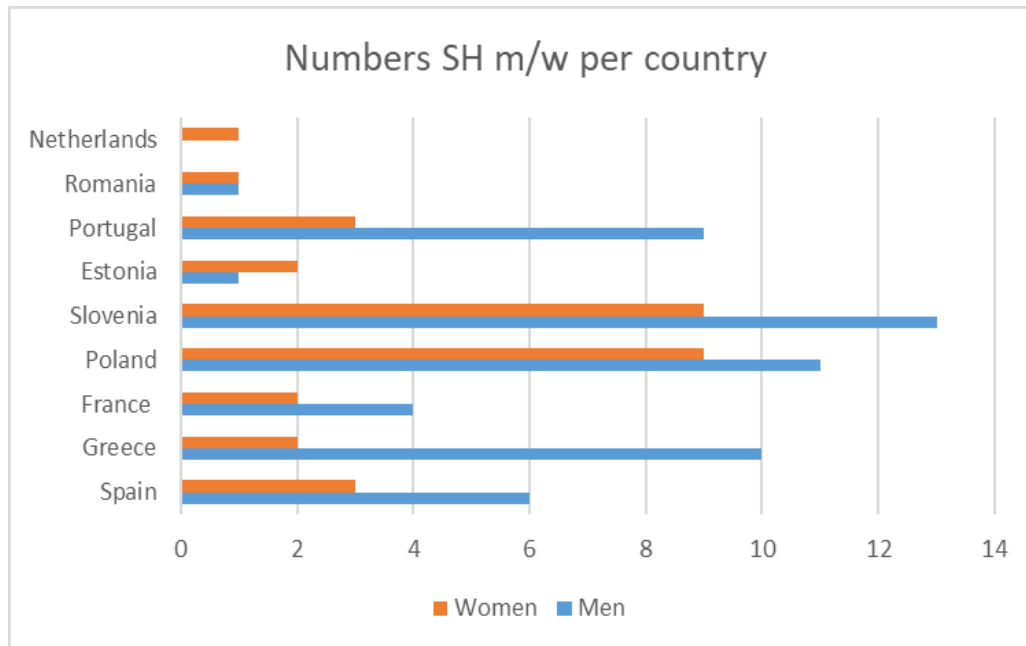
The SQAPP is developed for a test version and distributed in the plenary meeting of iSQAPER in Estonia in 2018. WP 5 leader CDE prepared a gender disaggregated questionnaire for test persons among the iSQAPER stakeholders at the study sites. This resulted in 89 respondents, 55 men, 32 women and 2 who preferred not to say their gender. Although this is a sample of the total number of stakeholders in iSQAPER, the percentage of involved women was 36 percent of the total. So one third of the stakeholder SQAPP testing persons are women. In the first stakeholder inventory 17 % were women, so this is improved. Most stakeholder test persons are between 30 and 50 years old.



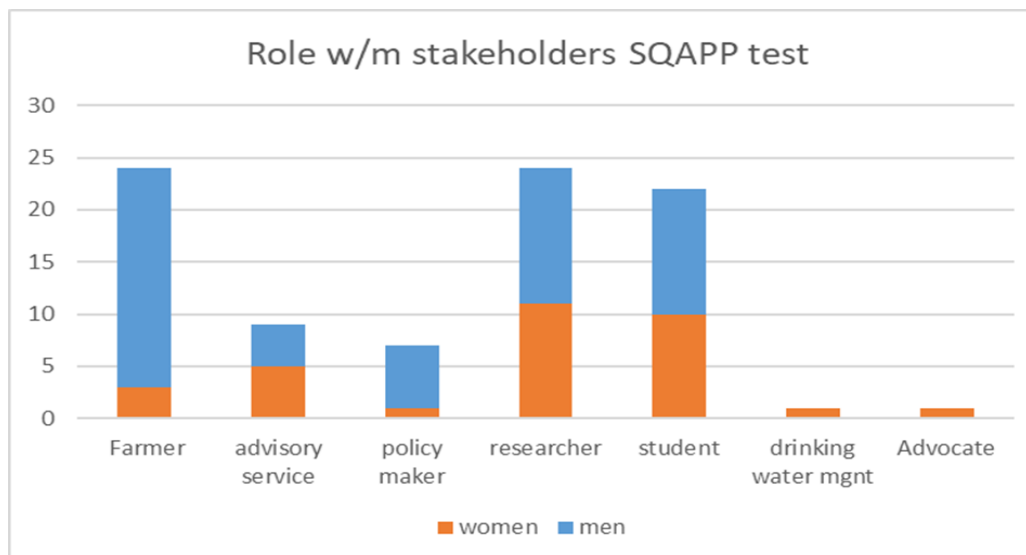
The women are reflected in orange, the men in blue.

## 2 Countries and roles of the SQAPP testing stakeholders

For the SQAPP test people from study sites, the women and men from 9 different involved countries responded. This is linked with the pedo climatic zone and the type of agricultural management and soil improvement practices. Every study site was asked to involve women.



This gives an overview of the roles from the men and women stakeholders that gave feedback on the SQAPP performance in numbers and gender disaggregated.



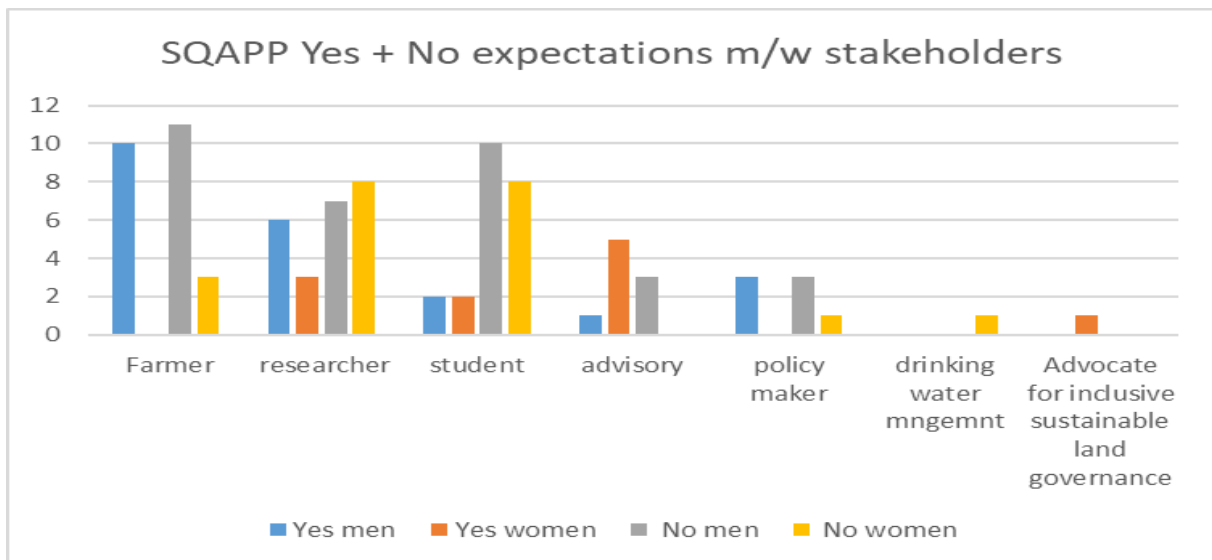
The researchers, student- and advisory service test persons are well balanced among men and women. From the 25 farmer stakeholders, 21 are men, 3 are woman and one didn't mention his or her gender. There was 1 woman from a drinking water company and one calling herself: "Advocate for inclusive sustainable land governance".

We will now look at the content of their comments.

### 3 Expectations from the SQAPP

This subchapter gives the expectations from the SQAPP from the different user groups;

- The expectations from the farmers to the possibilities of the SQAPP differ from “assessment and knowledge improvement about the soil” to: “appropriate recommendations and soil type needs for improved production”;
- The expectations from the researchers differ from: “improvement of soil management” to: “curiousness for the data and to facilitate research”;
- More women researchers have no specific expectations from the SQAPP (8 compared to 3 who do have specific expectations),
- Students (women and men) have no specific expectations from the SQAPP, women: 8 (no)-2 (yes) and men: 10 (no)-2 (yes);
- All 5 women from the advisory services do have specific expectations from the SQAPP, that differ from soil parameters and soil properties to user friendly info that can help their farmers to identify major soil threats and recommendations for solutions and good management.



Here you see the result of **the expectations** from the SQAPP by user group and gender disaggregated in numbers. Almost half of the responding farmers (10 from 25), but not the 3 farmer women, said they have expectations from the SQUAPP.

#### 4 Satisfaction on the soil properties chapter

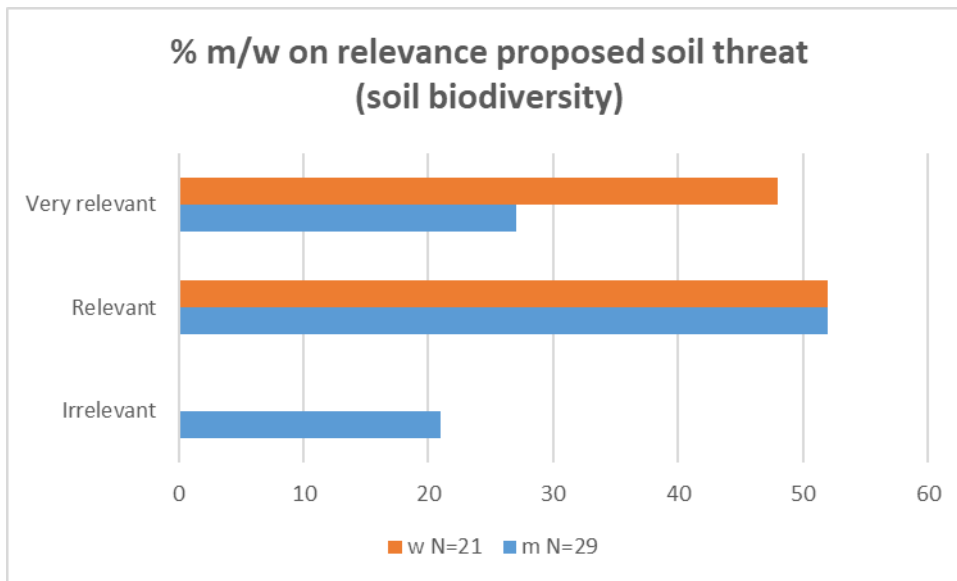
Among the testing stakeholders, most find the **Soil properties** chapter ‘good to satisfactory’. There were very few who said it was unsatisfactory, 3 men and 3 women. Comments and suggestions on the soil properties chapter came from 11 women and 10 men from different functions. Specific was the ‘difficulty of the information for use by farmers’ (mentioned by 2 women advisors who find the soil properties chapter unsatisfactory, and mentioned by several male farmers, two who find the chapter unsatisfactory also) and although they find the chapter satisfactory, several are questioning the data; two women want to know where they come from, the source of the data (woman advisor, she also mentions ‘The units of soil nutrients are different then we use in Slovenia’.) and they ask from which databases the data are extracted. Also a man, a farmer, asks how the data are being updated and who assesses the reliability of the data.



The percentages were taken when to be able to compare the content of the answers. In numbers this implies 29 men and 18 women for “good” and 23 men and 11 women for “satisfactory”.

#### 5 Gender significance

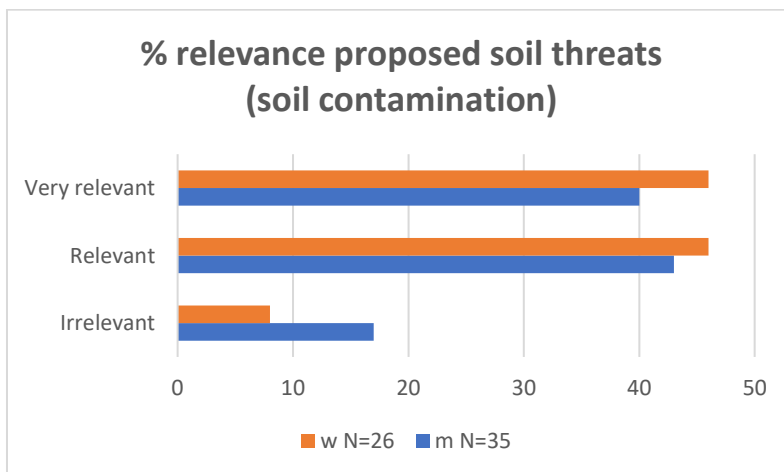
A gender equality **significance** test was done for all of the responses, 2/3 of them, that were appropriate for a Mann-Whitney-test, used for ordinal variables. And 1/3 t-test (with numerical values and yes/no answers). The questions were tested on significance of difference between the (average of all responds from) women and men, of them, 2 showed significance, this is the question: “How relevant are the **proposed soil threats** within the local context? [Soil biodiversity]”. Also “How relevant are the **proposed soil threats** within the local context? [Soil acidification]”. The women are more positive about the relevance of the proposed soil threats on biodiversity and soil acidification in the local context. Women respond between “very relevant and relevant” and men respond between “relevant and irrelevant”. Most of the other questions have differences in responds, but these are not proven gender significant. I have no explanation, it is not clear from the remarks whether biodiversity or acidification has gender specific attention.



A few more gender significances appear when the responds of advisors and researchers were tested as a user group separately: Significance among researchers can be found concerning in the question: How relevant are the **proposed soil threats** within the local context? [Soil organic matter decline] and [soil nutrient depletion], women researchers find it very relevant to relevant and the men researchers find it relevant to irrelevant.

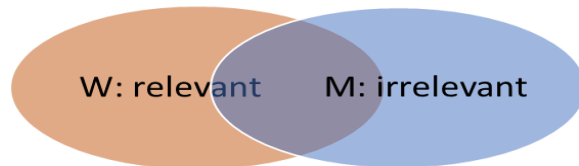
Also gender related significance appeared when comparing responds of the combination of researchers together with advisors, it shows significance in the responds to the question: “How relevant are the proposed biological soil properties? [Estimated soil microbial abundance].” Again here the women find it very relevant to relevant and the men find it relevant to irrelevant. And this significance does not appear with the same proposed biological soil properties [macrofauna groups], nor with the proposed physical and chemical soil properties.

Three of the gender significances that appear, are related to the question about the relevance of the proposed soil threat within the local context. In several aspects there is something that women find it more relevant than men among these respondents. Still none of the other mentioned aspects to the question of relevance of the proposed soil threats (water and wind erosion, compaction, salinization nor contamination), show any gender significance in the responds.



Example of the responds to relevance of the proposed soil treats [contamination], shows differences among gender relevance in the responds, but no significance from the test.

Therefore one could say that the significance draws attention, but is not ready for a conclusion. It remains in the sphere of nuances that are hard to point out.



*Figure 1 proposed soil threat: soil biodiversity/acidification;*

Concluding about the significance:

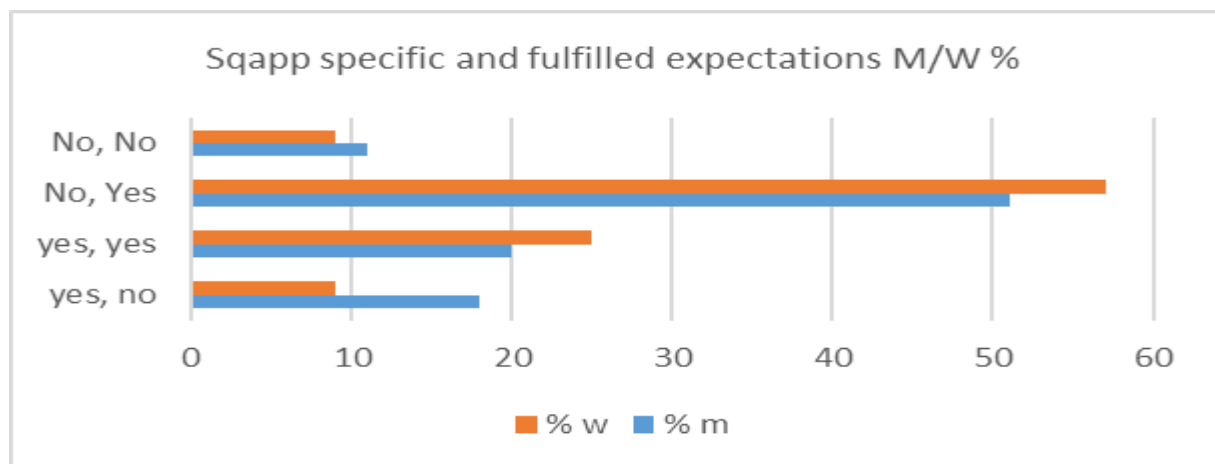
- Two questions with gender significant response from all 89 SQAPP testers of proposed soil threats within the local context on bio diversity and acidification
- Many differences are being determined, but not significant for gender
- A gender significant answer by researchers on SOM decline and nutrient depletion
- One significance from researchers and advisors on relevance from the SQAPP of the proposed soil biological properties, the “Estimated soil microbial abundance”

#### 6 Fulfilled expectations:

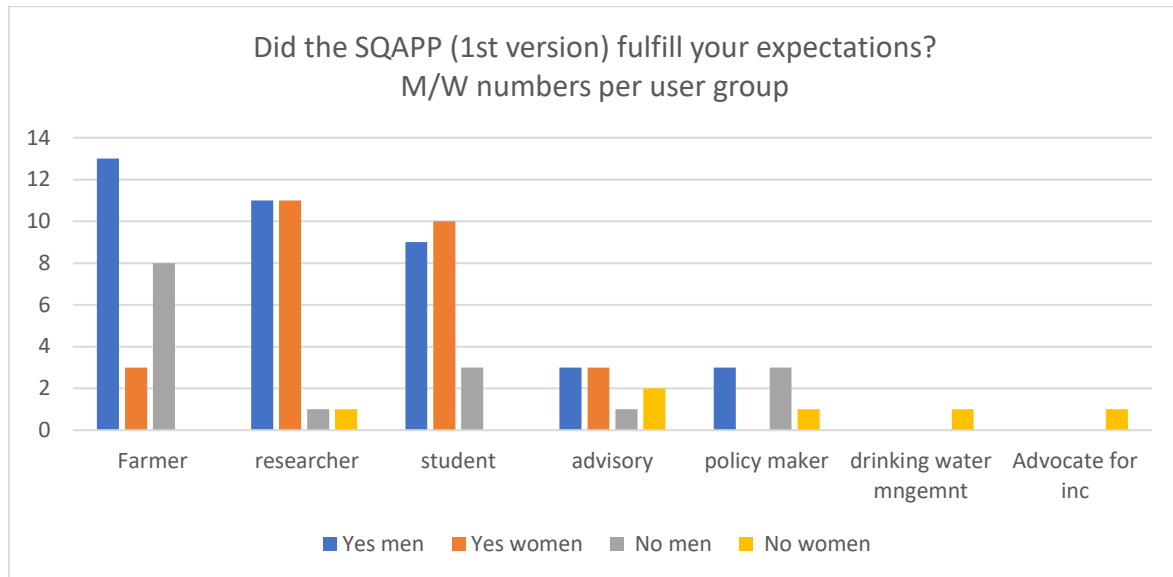
Women as well as men, are up to 100% positive about the clarity (of the SQAPP text) in the “practices provided”, and, both are mainly positive about the “level of detail”, women are a little more positive in percentage then men (respectively 84% and 75%).

About the fulfilment of the expectations, a majority of men and women say that the SQAPP fulfilled their expectations. In percentage women (82%) are a little more positive than men(71%) (table below).

Although more women had no specific expectations from the SQAPP than the ones who did before the test and after testing the SQAPP, more women and men did say that the SQAPP fulfilled their expectations, than the ones who say it didn't.



The 3 women that did have expectations from the SQAPP, but these were not fulfilled for them, (the “Yes, No” category) were two from advisory services, saying “the information is too theoretic, ask to give more practical advices which are actually usable for farmers and advisers”. This is in coherence with most of the farmers comments, they ask for more practical information, farm specific data, translation to the local language and more personification of the app. The other woman said: “When starting at a plot it is OBLIGATORY to fill out the annual precipitation. And this data is not always at hand, therefore it is guesstimated or even just randomly filled-out. It would be good if SQAPP would use geo-located precipitation databases.” She also says to “Indicate the sources/ databases for the Soil Properties and the Soil Threats”.



In summary the comments are:

- SQAPP information is difficult for farmer use (say women advisors and men farmers)
- Questions on data reliability (from m/w researchers and politicians)



## 7. Conclusions from the SQAPP test user groups

The conclusions are:

1. Gender disaggregated data useful for insight in -and approach to- equality and diversity
2. Ordinal responds show a few gender significant responds; women see more relevance
3. SQAPP test users m/w are positive, women in % a little more on fulfilled expectations

Ad 1. Among the SQAPP test stakeholders there were 55 men (62%) and 32 women (36%) and 2 who preferred not to say their gender. The diversity is researched in the stakeholder responds to the SQAPP tests.

Ad 2. From the stakeholder SQAPP test questionnaire in the third project period, the test for gender related responds, results in a significance on the opinion about “How relevant are the **proposed soil threats** within the local context for “Soil biodiversity” and for “soil acidification”, among all responds.

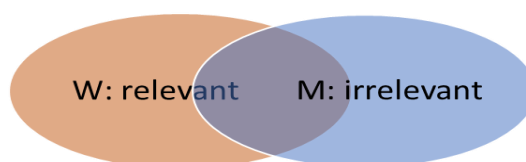


Figure 2: proposed soil threat: soil biodiversity/acidification;

When differentiating the answers from the researchers and the advisors only, a significance shows on the: “How relevant are the proposed **biological soil properties**, concerning the: *Estimated soil microbial abundance.*” And for the researchers only, a significance showed upon the question: “How relevant are the **proposed soil threats** within the local context? On Soil organic matter decline and on Soil nutrient depletion,” women researchers find it in the mentioned questions “very relevant” to “relevant” and the men find it “relevant” to “irrelevant”

Except from these significances from the outcomes, there is no other clue why women would find this soil biodiversity and soil acidification more relevant as a proposed soil threat than men. The involved women do not mention the subjects specifically in the remarks, and, although these probability tests on significance are there to exclude coincidence, that is also still a minor possibility. Also, these are some differences that might be due to gender related interests and helpful to widen our scope to the needs of the stakeholders and the solutions that we are looking for. The significant subjects may be interesting for further investigation towards gender related interests.

Ad 3. A majority of men and women say that the SQAPP fulfilled their expectations. In percentage women (82%) are a little more positive than men(71%). They expected information on soil quality from the SQAPP. This was covered satisfactory according to both m/w from different user groups.

### Reference:

(CDE 2019) D5.1 Stakeholder feedback to soil quality assessment app WP4 – UNIBE, CDE, Abdallah Alaoui & Tatenda Lemann, iSQAPER EU project, 2018/2019