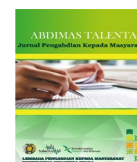




## ABDIMAS TALENTA Jurnal Pengabdian Kepada Masyarakat

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# Identification and Calibration of Measuring Scales Accuracy in Trading at The Tigabinanga Fruit Market and Socialization of the Importance of Calibration at SMAN 1 Tigabinanga

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### ABSTRACT

The accuracy of measuring instruments is very important in every use of tools, both in trade transactions and other fields that require measuring instruments. In the field of trade, the use of accurate measuring scale in a transaction is considered very important in determining the final amount that must be paid by consumers. At the Tigabinanga fruit market, differences in measurement values were found with an accuracy of up to 600 grams. Therefore, to maintain the accuracy of the scale measurements, regular re-calibration must be carried out. The introduction of the re-calibration process was carried out by Lecturers and assisted by students of the Faculty of Vocational Studies, University Sumatera Utara (USU) in two places, namely the Tigabinanga Fruit Market and socialization to students of SMAN 1 Tigabinanga. This activity is a community service activity from the USU Vocational Faculty that was well received by traders and students. The lack of awareness of traders to re-calibrate and the small number of scales found that have a valid calibration stamp show that the importance and provide a real effect of this socialization. In addition, the introduction of calibration was also carried out students of SMAN 1 Tigabinanga, the students were also considered as right target, where students showed enthusiasm and deep curiosity about the calibration and recalibration processes which are important in the use of simple measuring instruments, even on market scales.

**Keyword:** Callibration, Accuracy, Measuring Scales, Trade

## 1. Introduction

Universitas Sumatera Utara is taking steps to be involved in realizing the world's goals and targets in the SDGs programs which consists of 17 goals and 169 objectives. Building resilient infrastructure, enhancing inclusive and sustainable industry, and encouraging innovation is the 9th SDGs programs. Its goal is to increase economic productivity through certification, technology quality improvement, and innovation, including by concentrating on labor-intensive and higher-value sectors and promoting development-oriented policies that support job creation, entrepreneurship, innovation, and productive activities.

Tigabinanga is one of the national trading markets located in Karo, North Sumatra, where all measuring instruments should be traceable as proven by a valid calibration stamp. However, in reality, the measuring instruments owned by traders are not legally traceable because they do not have a valid calibration stamp and many are found has expired. Furthermore, many traders alter the scale indicator needle in order to benefit

themselves at the expense of purchasers. For instance, when purchasing 5 kg of oranges weighed in the market, the weight may differ by up to 600 grams or more if the oranges are reweighed elsewhere. One of the factors contributing to this is the general lack of knowledge regarding the calibration of weighing and measuring devices, which causes losses for both traders and consumers. As a result of this issue, regional income will decline, customer mistrust will grow, and different dealers will charge different prices for different kinds of commodities.

Calibration is the process of checking and adjusting the accuracy of measuring instruments by comparing them with standards/benchmarks. Calibration is needed to ensure that the measurement results are accurate and consistent with other instruments. Inconsistent measurement results will directly affect product quality [1-2]. Consumer protection encompasses all of the legal regulations and principles that govern the interactions and issues between different parties, including those involving consumer goods and services in interpersonal interactions [3]. An agreement to exchange products or services between a buyer and a seller is called a transaction. A transaction is defined as a component of a business's operations, which can be conducted by large, medium, or small businesses [4].

With the problem of measuring instruments of traders who do not have a valid calibration stamp, then to optimize the government program on the importance of carrying out calibration and re-calibration in the trading process and introduction to the community, as well as supporting the 9th SDGs program on Building Resilient Infrastructure, increasing inclusive and sustainable industry, and encouraging innovation. With this, the implementation of Community Service activities entitled **Identification and Calibration of Measuring Scales Accuracy in Trading at The Tigabinanga Fruit Market and Socialization of the Importance of Calibration at SMAN 1 Tigabinanga** is expected to be able to help Tigabinanga fruit market traders and the community to be familiar with the calibration and accuracy of the measurement tools, especially students of SMA Negeri 1 Tigabinanga.

## 2. Methods

The following are the methods used to carry out this community service projects that have been completed:

1. Realizing orderly measurement and weighing of Fruit Market Trade in Tigabinanga and at SMA Negeri 1 Tigabinanga for Students and Teachers of SMA Negeri 1 Tigabinanga and traders at Tigabinanga fruit market. After that, the calibration of the measuring instruments and socialization of the Vocational Faculty to students and teachers of SMA Negeri 1 Tigabinanga was carried out directly while providing education on the importance of traceable measuring instruments to increase consumer confidence and regional income retribution.
2. Participatory Rural Appraisal where all students, teachers and traders as targets are actively involved as subjects while the team of experts from the university is assisted by students as facilitators.
3. Comprehensive, namely all community service activities are carried out simultaneously related to Realizing Orderly Measurement and Weighing of Fruit Market Trade in Tigabinanga and at SMA Negeri 1 Tigabinanga, followed by directly carrying out calibration of measuring instruments and socialization of the Vocational Faculty and education to students and teachers of SMA Negeri 1 Tigabinanga, to traders at Tigabinanga fruit market.

Furthermore, the above method is implemented in 5 steps, namely:

- a. Conducting field observations or surveys to determine the conditions of students and teachers of SMA Negeri 1 Tigabinanga and traders at the Tigabinanga fruit market regarding available resources and problems faced.
- b. Discussions and interviews were conducted with students and teachers of SMA Negeri 1 Tigabinanga and traders at the Tigabinanga fruit market to determine the potential of the community service program to be implemented, namely Realizing Orderly Measurement and Weighing of Tigabinanga Fruit Market Trade and at SMA Negeri 1 Tigabinanga.
- c. Community service program introduction activities, namely the community service team introducing the community service activity plan to the target. At this stage, the time and detailed schedule of activities to be implemented were agreed upon, including the delivery of socialization materials, calibration, and education on the implementation of community service activities Realizing Orderly Measurement and Weighing of Tigabinanga Fruit Market Trade and at SMA Negeri 1 Tigabinanga and traders at the Tigabinanga fruit market are expected to actively participate in each series of planned activities so that the dissemination of knowledge can be achieved optimally.

- d. Socialization is carried out in the form of lectures and discussions. Calibration is carried out directly on measuring instruments demonstrated to students and teachers of SMA Negeri 1 Tigabinanga and to measuring instruments owned by Tigabinanga fruit market traders.
- e. Carrying out monitoring of the calibration process of measuring instruments and ownership of valid calibration stamps for measuring instruments.

This community service project is often completed in phases. For the purpose of creating reports and outputs, each step includes a number of documented activities. The following are the phases' specifics:

1. Proposal Submission

After consulting with partners, the team will now create a community service program for the teachers and students at SMA Negeri 1 Tigabinanga as well as vendors in the Tigabinanga Fruit Market. In order to assess the state of the traders' measurement devices, the team will also speak with partners and government representatives and survey the students and teachers at SMA Negeri 1 Tigabinanga. The implementation budget is also determined during proposal development by taking into account the accessibility of lodging, transportation, and infrastructure across the service.

2. Preparation of Socialization Materials

The team will next create a timeline for carrying out the community service after submitting the request. Additionally, they will compile socialization materials for the Vocational Faculty and calibrate the weighing.

3. Implementation

The intended dates of this program are June–November 2023. Teachers and students at SMA Negeri 1 Tigabinanga, as well as vendors at the Tigabinanga fruit market, will engage in a number of community service projects during the implementation phase.

4. Monitoring and Evaluation.

Universitas Sumatera Utara Community Service Institute will oversee and assess the program's execution. The goal of monitoring and evaluation is to ascertain how well socialization and calibration are being implemented, and to identify alternatives in the event that challenges arise during service delivery that need to be promptly addressed in order for the service program to meet its goals. The final report will include the monitoring and assessment outcomes.

### 3. Result and Discussion

The students of SMA Negeri 1 Tigabinanga were highly motivated and excited about the service team's presentation material, as seen by their serious attitude and the numerous questions that came up during the service activity. As one of the goals to continue their education at state universities in North Sumatra, the teachers and students were extremely appreciative of the existence and execution of this service activity since it gave them new knowledge about, calibration, and valid calibration stamps. They also learned more about the study programs at the USU Faculty of Vocational Studies.



**Figure 1.** Service members answered questions asked by students at SMA Negeri 1 Tigabinanga



The Principal of SMA Negeri 1 Tigabinanga really hopes that this community service activity can be carried out periodically to increase the insight of the students, especially the increasing enthusiasm for learning which can be seen from the seriousness and high curiosity of the students and the Principal expressed his sincere gratitude for the implementation of the community service activity at SMA Negeri 1 Tigabinanga.



**Figure 2.** Group Photo of the Community Service Team with the Principal of SMA Negeri 1 Tigabinanga

Meanwhile, the community service activities carried out at the Tigabinanga Fruit Market were very well received by traders and consumers. Traders and consumers were educated about weighing measuring instruments, especially since all measuring instruments in the market for buying and selling transactions must be stamped with a valid calibration stamp through re-calibration and plastic weighing scales cannot be used in trade transactions. In addition, traders learned how to properly maintain measuring instruments. Traders also hope that the Community Service Team can convey to the relevant agencies so that the re-calibration of the measuring instruments owned by traders can be calibrated by the relevant agencies and confiscate all plastic weighing scales owned by traders because they do not comply with trade laws and regulations in order to create orderly trade measurements at the Tigabinanga Fruit Market. Traders expressed their gratitude for the community service activities and the provision of spring weighing scales from the Community Service Team with the hope that community service activities from USU at the Tigabinanga Fruit Market can be carried out sustainably/periodically.





**Figure 3.** The Community Service Team is currently re-calibrating the weighing measuring instruments and providing an explanation of the importance of re-calibrating the measuring instruments at the Tigabinanga Fruit Market.

By carrying out this service, the students of SMA Negeri 1 Tigabinanga can become an extension of their hands in conveying to the community about the importance of re-registering measuring instruments and educating the public that plastic scales cannot be used in buying and selling transactions because they violate government regulations. The students also interest to continue their higher education at Faculty of Vocational Studies, USU.

Meanwhile, traders have learned how to properly maintain measuring instruments, all measuring instruments must be stamped with a valid calibration stamp and plastic scales cannot be used in buying and selling transactions. Thus, the Tigabinanga Fruit Market can be improved towards an orderly market for measuring trade. The implementation of orderly measurements at Tigabinanga Fruit Market has been realized and can increase the trust of traders and consumers in conducting buying and selling transactions which encourages price fluctuations between traders to not differ much, thus providing benefits for the community who conduct buying and selling transactions using scales at Tigabinanga Fruit Market.

#### 4. Conclusion

By implementing community service activities to socialize the importance of calibration and recalibration on market weighing measuring instruments at SMA Negeri 1 Tigabinanga and at Tigabinanga Fruit Market, the following conclusions were obtained.

1. The students of SMA Negeri 1 Tigabinanga have learned the importance of re-calibrating measuring instruments that are stamped with a valid calibration stamp, so the students are very good at being an extension to regulate measurements, as seen by several students giving suggestions and advice to traders not to use plastic scales and all measuring instruments must be stamped with a valid calibration stamp from the Legal Metrology Unit.
2. The students of SMA Negeri 1 Tigabinanga interest in learning and show their desire to become USU students, as seen from the large number of grade 12 students who visited the Vocational Faculty, USU, guided by the Principal of SMA Negeri 1 Tigabinanga and the Head of the SMA and PK Section of the North Sumatra Branch Office 4.
3. After the re-calibration of measuring instruments and socialization of measuring instrument maintenance for measuring instruments owned by traders, based on the results of monitoring and evaluation 30 days after the activity was carried out, there has been a significant decrease in the use of measuring instruments made of plastic and an increase in measuring instruments that have a valid calibration stamp and measuring instruments in accordance with applicable legal regulatory standards.

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## REFERENCES

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- [1] Oesman, Widya,dkk. *Laporan Akhir Penyelarasan Naskah Akademik Rancangan Undang-Undang Tentang Metrologi*. Jakarta: Kementerian Hukum dan HAM. 2016
- [2] Hadi, Anwar. *Persyaratan Umum Kompetensi Laboratorium Pengujian & Laboratorium Kalibrasi ISO/IEC*. Jakarta: PT.Gramedia Pustaka Umum. 2018
- [3] Atsar,Abdul dan Rani Apriani. *Buku Ajar Hukum Perlindungan Konsumen*. Yogyakarta: Deepublish. 2019
- [4] Syahrani, Irwansyah. *Modul Administrasi Transaksi XI*. Yogyakarta: Deepublish. 2018.