

International Service Learning in Wringinsongo Village to Build Intercultural Competence and Global Citizenship

ABSTRACT - The clean water needs of the Wringinsongo Village community, Tumpang District, Malang Regency, remain challenging because the water source is located below the residential area, while conventional pumps require operational costs. This Community Service Program aimed to implement *International Service Learning* (ISL) to facilitate participants' intercultural competence and global citizenship awareness while supporting the community's water needs through the installation of a hydraulic ram pump (hydram). The activities included briefing, pump assembly, installation with the community, and structured reflection. Data were collected through observation, discussion, reflection, documentation, and technical measurements, and analyzed descriptively. The results showed intercultural interaction, reflection on the role of global citizens, and practical skills in assembling and installing the hydram pump. The pump successfully operated and lifted water to the planned distribution point during the trial run. The activity also resulted in initial communication and opportunities for further academic collaboration. Further monitoring is needed to evaluate the medium-term impacts of the installation.

ABSTRAK - Kebutuhan air bersih masyarakat Desa Wringinsongo, Kecamatan Tumpang, Kabupaten Malang, masih menghadapi kendala karena sumber air berada di bawah permukiman warga, sementara pompa konvensional memerlukan biaya operasional. Kegiatan Pengabdian kepada Masyarakat ini bertujuan melaksanakan *International Service Learning* (ISL) untuk memfasilitasi kompetensi interkultural dan kesadaran warga global peserta sekaligus mendukung kebutuhan air masyarakat melalui instalasi pompa hidram. Kegiatan meliputi pembekalan, perakitan pompa, instalasi bersama masyarakat, dan refleksi terstruktur. Data dikumpulkan melalui observasi, diskusi, refleksi, dokumentasi, dan pengukuran teknis, kemudian dianalisis secara deskriptif. Hasil menunjukkan adanya interaksi lintas budaya, refleksi mengenai peran sebagai warga global, serta keterampilan praktis dalam perakitan dan instalasi pompa hidram. Pompa berhasil berfungsi dan mengangkat air ke titik distribusi yang direncanakan pada saat uji coba. Kegiatan juga menghasilkan komunikasi awal dan peluang pengembangan kerja sama akademik. Pemantauan lebih lanjut diperlukan untuk mengevaluasi dampak instalasi dalam jangka menengah.

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INTRODUCTION

The globalization of higher education has encouraged universities to strengthen their academic capacity while contributing to and engaging with the international community. Internationalization has therefore become an important strategy for broadening academic experiences, strengthening research and community engagement, and preparing students to participate in increasingly interconnected societies. Over the past two decades, internationalization initiatives in higher education have developed rapidly, including the implementation of International Service Learning (ISL) programs. In Indonesia, internationalization has become an important agenda as Indonesian universities continue to strengthen their global competitiveness (Brilyanti, 2025). ISL is one approach that integrates service-learning, study abroad, and international education (Tandyonomanu & Aji, 2022). Through this approach, community service can become an experiential learning process that connects academic activities with direct engagement in a community. Therefore, the ability of universities to develop and manage cross-country community-based programs is relevant to the broader internationalization of higher education.

ISL also provides an opportunity to develop participants' intercultural competence and global citizenship. Direct interaction with local communities can encourage participants to appreciate cultural differences, understand different social contexts, and become aware of social inequalities (Chan et al., 2021). Community-based service-learning can also strengthen students' social skills through direct engagement with communities. However, participation in an international community service activity does not automatically result in intercultural learning or global citizenship awareness. Previous research emphasizes that learning and reflection need to be deliberately designed so that participants can connect their community experiences with broader intercultural and civic perspectives (Fu et al., 2026). Meaningful community engagement also requires reciprocal relationships between higher education institutions and host communities, particularly because partnerships in international service-learning may involve differences in roles and power between participating institutions and communities (Delaine et al., 2023). Thus, an ISL program needs to combine a relevant community need with opportunities for direct interaction, collaborative practice, and structured reflection.

This context is relevant to the Community Service Program conducted in Desa Wringinsongo, Tumpang, Malang Regency, East Java Province. Desa Wringinsongo is located in the western part of Tumpang Subdistrict and forms part of an area connected to the route toward the Bromo Tengger Semeru National Park, providing opportunities for community-based development and broader institutional collaboration (Desa et al., 2024). At the same time, the village has community needs that can provide a meaningful context for university-community engagement. Based on the community service team's initial observations and preliminary discussions with the village community, one of the identified needs concerns access to clean water. The main water source is located below the residential area, requiring water to be lifted to the settlement. The conventional pumping approach requires electricity or fuel, creating operational considerations for the community. These initial findings provided the basis for identifying water access as a relevant community-service issue and for considering an appropriate alternative water-lifting solution. Although the initial condition was identified primarily through observation and preliminary communication rather than a comprehensive quantitative assessment, it provided a practical starting point for designing the community intervention.



The water-access issue also provides an appropriate setting for experiential and intercultural learning. In this program, the village community is positioned not only as the recipient of a technical intervention but also as the host community and an active participant in the service-learning process. Participants are expected to interact directly with residents, understand the local context, participate in practical activities, and reflect on their experiences. Such reciprocal engagement is important in community service because community participation can contribute to the relevance and sustainability of program activities (Gregory et al., 2021). Cross-institutional communities of practice can also provide a shared platform for supporting community-based programs and strengthening collaboration among participating institutions (Motley et al., 2025). Therefore, the identified community need serves not only as the basis for the technical intervention but also as a context for developing meaningful relationships and learning experiences between participants and the host community.

Previous community service activities have demonstrated the contribution of student and university involvement to community development. (Sarilita et al., 2025) reported that student-led community service contributed to health education and strengthened the capacity of community health workers in a village in West Java. Kayode et al. (2020) also highlighted the broader role of service-learning in community development beyond a single technical field. These studies demonstrate the potential of service-learning and student involvement to generate community benefits while providing participants with experiential learning opportunities. However, these studies do not specifically address the integration of an international service-learning experience with an appropriate-technology intervention designed to respond to a concrete village-level need.

In relation to the identified water-access problem, a hydraulic ram pump (hydam) provides an appropriate technological alternative. A hydam is a water-lifting device that operates automatically without electricity (Salimin & Barata, 2022). Its relatively simple operation and low energy requirements make it applicable to rural and mountainous settings. Previous community service activities have demonstrated the application of hydam technology to address water-access needs. (Sihombing et al., 2024), for example, implemented a hydam pump in Bulusari Village, Banyuwangi, through stages including socialization, installation, and evaluation to improve community access to clean water. This previous activity demonstrates the practical feasibility of hydam technology as a community-oriented solution and provides a technical reference for the installation component of the present program.

However, the existing studies indicate a gap between the technical and educational dimensions of community service. Previous service-learning studies have emphasized community development, student involvement, and learning experiences, while previous hydam-related community service has primarily focused on the technical intervention and its contribution to water access. The integration of hydam installation with International Service Learning, cross-cultural interaction, structured reflection, and university-community partnership has received limited attention, particularly in a village-level activity involving participants from national and international higher education institutions. Therefore, the contribution of the present program does not lie in introducing hydam technology itself, since its application has been reported in previous community service activities. Rather, its added value lies in integrating appropriate technology, reciprocal community engagement, and international experiential learning within a single community service framework.

Based on this gap, the Community Service Program was implemented in Desa Wringinsongo as part



of the International Polinema Experiential Learning & Cultural Immersion 2026 series. The installation of a hydram pump was positioned as a tangible contribution to the community's water-access needs, while the preparation, hands-on practice, field installation, interaction with residents, and structured reflection were integrated into the ISL experience. Participants from Universiti Tun Hussein Onn Malaysia (UTHM), Universitas Bhinneka Nusantara, Shandong University of Science and Technology, and other participating institutions engaged with the village community through collaborative activities. This arrangement enabled the technical activity to be accompanied by opportunities for participants to communicate across cultural backgrounds, collaborate with residents, and reflect on their experiences. The program therefore combines a concrete community-service intervention with experiential and intercultural learning.

The implementation of the program is grounded in four interconnected concepts: International Service Learning, intercultural competence, global citizenship, and university-community partnership. ISL integrates academic or experiential learning with community service across cultural or national boundaries (Chan et al., 2021). Intercultural competence emphasizes the ability to interact effectively while recognizing and appreciating cultural differences. Global citizenship encompasses intercultural understanding, identification with the global community, and civic engagement. University-community partnerships are also important for establishing meaningful and sustainable relationships between higher education institutions and surrounding communities. Within this framework, the hydram installation represents the tangible service component, while participant interaction, collaborative practice, and structured reflection represent the experiential learning component. These dimensions provide the conceptual basis for evaluating both the technical implementation of the program and the participants' intercultural and global citizenship learning experiences.

Accordingly, this Community Service Program, entitled "International Service Learning in Desa Wringinsongo to Build Intercultural Competence and Global Citizenship," aims to (1) implement an International Service Learning-based community service program involving national and international higher education partners in Desa Wringinsongo; (2) contribute to addressing the community's water-access need through the installation and trial of a hydraulic ram pump; (3) facilitate participants' intercultural competence and global citizenship awareness through direct interaction, collaborative activities, and structured reflection with the host community; and (4) strengthen relationships and initial collaboration between participating higher education institutions and the village community. The achievement of these objectives is evaluated through participant observation, discussion and reflection, documentation, community feedback, and technical measurements related to the hydram pump, including its installation and water-lifting function.

RESEARCH METHOD

This Community Service Program (PKM) employs a participatory approach based on International Service Learning (ISL) through briefing sessions, hands-on practice, fieldwork together with the community, discussion, and structured reflection. The activity aims to develop participants' intercultural competence and global citizenship awareness, strengthen university-community partnerships, and support the village community's needs through service activities, including the installation of a hydram pump. The activity was carried out on 26 June 2026 in Desa Wringinsongo, Tumpang, Malang Regency, East Java Province, as part of the International Polinema Experiential Learning & Cultural Immersion 2026 series.



The implementation followed three main stages: preparation, implementation with the community, and evaluation-reflection. The preparation stage included coordination with the village government, initial observation of village conditions and community needs, and preparation of materials and equipment. Participants received a briefing and conducted hands-on practice assembling the hydram pump at Politeknik Negeri Malang. During the implementation stage, participants worked together with the village community to install the pump and air chamber while interacting and engaging in dialogue with residents. After installation, a trial run was conducted to examine the pump's function, followed by an explanation of basic maintenance for residents or the pump manager.

The activity involved students and lecturers from Universiti Tun Hussein Onn Malaysia (UTHM), Universitas Bhinneka Nusantara, and Shandong University of Science and Technology, together with the Desa Wringinsongo community. The participants consisted of 67 students and 7 lecturers, while 6 community members were involved in the field activities. Students participated in hands-on assembly, installation, interaction, and reflection; lecturers facilitated coordination, technical guidance, and evaluation; while community members contributed to field activities, discussions, and feedback. Desa Wringinsongo was selected based on initial observations indicating community openness and needs related to clean-water access.

Data were collected through observation, discussion, participant reflection, documentation, and simple technical measurements, including source discharge, fall height, delivery head, and outlet discharge. Observation focused on participant involvement, intercultural interaction, community participation, and technical activities. Discussion and reflection were used to identify participants' learning experiences, intercultural understanding, and global citizenship awareness. Documentation supported evidence of participation and implementation, while technical measurements were used to assess the installation and operation of the hydram pump. The instruments included observation sheets, discussion and reflection guides, documentation sheets, and technical measurement records.

Table 1. Activity Success Indicators

No	Indicator	Success Indicator
1	Intercultural Competence	Participants demonstrate an attitude of appreciating differences and are able to communicate with fellow participants and residents from different cultural backgrounds.
2	Reflection and Global Citizenship Awareness	Participants are able to convey reflections on their experience and demonstrate awareness of their role as global citizens.
3	Relationship with the Village Community	Good interaction is established between participants and the village community as the host community.
4	Networking and Collaboration	Communication is established with national and international partners, and initial forms of academic collaboration are identified.



5	Technical Understanding	Participants understand the working principle and components of the hydram pump.
6	Assembly Skills	Participants are able to assemble the components of the hydram pump through hands-on practice.
7	Installation Implementation	The hydram pump is installed at the site together with the village community.
8	Pump Function	The pump operates and lifts water after the trial run.
9	Maintenance Understanding	Participants and residents or the pump manager understand basic pump maintenance.

The data were analyzed using descriptive qualitative analysis. Observation, discussion, reflection, and documentation were classified according to the nine indicators, reduced, and interpreted to identify evidence of participant learning, community involvement, collaboration, and technical achievement. Reflection and discussion data were used particularly to interpret intercultural competence and global citizenship awareness, while observation and documentation provided supporting evidence. Technical measurements were analyzed descriptively to assess the installation and pump function. The findings from different data sources were compared to strengthen the interpretation of activity achievement and to formulate recommendations for future ISL-based community service activities.

RESULT AND DISCUSSION

The Community Service Program (PKM) titled *“International Service Learning in Desa Wringinsongo to Build Intercultural Competence and Global Citizenship”* was implemented through preparation, briefing, field implementation, and evaluation-reflection stages. The results are presented according to the activity achievement indicators covering intercultural learning, community engagement and collaboration, technical learning, and hydram pump installation and operation. During the preparation and implementation stages, participants and village residents worked together to prepare hydram pump components, including checking pipes, valves, and the air chamber before installation. This activity also became an initial space for interaction and cross-cultural communication between participants and residents (Figure 1).





Figure 1. Preparation of hydam pump components with residents.

After installation, a trial run was conducted to ensure the pump could lift water as needed, followed by an explanation of maintenance procedures and a structured reflection session with all participants. Evaluation of the activity was carried out through observation of participant participation and interaction, discussion and reflection, activity documentation, and simple technical measurements. The results are presented according to the activity achievement indicators to clarify the relationship between the program objectives and the outcomes obtained. The evaluation showed that participants were actively involved in the assembly and installation process. From a technical standpoint, the hydam pump successfully operated and lifted water from the source to the planned distribution point during the trial run.

Table 2. Achievement of Community Service Program Results

No	Success Indicator	Observed Result
1	Intercultural Competence	Participants demonstrated an attitude of appreciating differences and were able to communicate with fellow participants and residents from different cultural backgrounds throughout the activity.
2	Reflection and Global Citizenship Awareness	Participants were able to convey reflections on their experience and demonstrated awareness of their role as global citizens during the structured reflection session.
3	Relationship with the Village Community	Good interaction was established between participants and residents, marked by the active involvement of residents throughout the installation process.
4	Networking and Collaboration	Initial communication was established with UTHM and other partners, with opportunities for further academic collaboration identified.



5	Technical Understanding	Participants understood the working principle and components of the hydram pump through the briefing session.
6	Assembly Skills	Participants were able to assemble the hydram pump components directly under the team's guidance.
7	Installation Implementation	The hydram pump was installed at the planned location together with the village community.
8	Pump Function	The hydram pump functioned and successfully lifted water to the planned distribution point during the trial run.
9	Maintenance Understanding	Residents/the pump manager understood the basic steps of pump maintenance after the handover session.

Based on Table 2, the non-technical results indicate that the activity provided opportunities for intercultural interaction and reflection. Participants communicated with residents from different cultural backgrounds and demonstrated appreciation of differences throughout the activity. The structured reflection also showed participants' awareness of their role as global citizens, particularly in recognizing differences in access to clean water and the importance of cooperation in addressing community needs. These findings are consistent with (Chan et al., 2021), who showed that student involvement in international service-learning contributes to the development of global citizenship and intercultural effectiveness. However, the present activity combined this intercultural learning with a direct community service intervention through hydram pump installation.

In terms of community relationships and networking, residents were actively involved in the preparation and installation process, indicating that the community functioned not only as a recipient but also as an active partner in the activity. Initial communication was also established with UTHM and other partners, creating opportunities for further academic collaboration. This finding supports Lestari et al. (2022), which emphasized the importance of community involvement in university-based service activities. However, the networking outcome in this activity represents an initial form of collaboration, as further academic collaboration had not yet been formally implemented at the time of the program.

In the technical aspect, participants gained direct experience in understanding the working principle and components of the hydram pump, assembling the components, and installing the system in the field together with residents. The pump successfully operated during the trial run and lifted water to the planned distribution point. This result is consistent with Sihombing et al. (2024), which demonstrated the importance of involving residents throughout the stages of hydram pump implementation. Similarly, Widiawaty et al. (2026) emphasized the role of resident involvement in operational and maintenance activities. The present activity differs from these studies in its integration of technical learning with international service-learning, cross-cultural interaction, and structured reflection. Thus, its contribution lies in combining the technical and educational dimensions within one community service activity.

These findings are also related to (Sarilita et al., 2025) and (Delaine et al., 2023), which highlight the contribution of community service and service-learning to community development and participant learning. From the technical perspective, the findings are comparable with hydram pump implementation in Bulusari Village, Banyuwangi (Widiastuti et al., 2015), as both activities involved community participation in the implementation process. Meanwhile, (Sucipta & Suarda, 2016) demonstrated that technical assistance can support the development of a water distribution system. The present activity extends these findings by placing

the technical intervention within an international experiential learning context, where participants simultaneously developed technical experience and intercultural learning through direct engagement with the host community.

Figure 2 provides visual evidence of the physical changes before and after the hydam pump installation. Before installation, the pipe network had not yet been systematically connected as an integrated water distribution system. After installation, the pipes were connected from the water source toward the designated distribution point, with the hydam pump and air chamber incorporated into the system. This visible change supports the result that the installation was completed at the planned location and that the system was ready for the trial run.



Figure 2. Condition of the pipes before and after hydam pump installation.

The implications of this activity can be seen from both the participant and community perspectives. For participants, the activity provided direct experience in technical assembly and installation, intercultural interaction, and reflection on global citizenship. For the community, the installation provided an initial technical intervention to support water distribution. However, the claims that the installation resulted in more stable access to clean water and reduced operational costs compared with conventional pumps cannot yet be confirmed because these outcomes were not measured through a medium-term evaluation. Therefore, the current results are limited to the successful initial installation and operation of the hydam pump. Further evaluation is needed to assess water-access stability, operational costs, maintenance, and the sustainability of the technical benefits over time.

CONCLUSION

This Community Service Program (PKM) successfully implemented an International Service Learning (ISL) activity involving national and international partners in Desa Wringinsongo. The activity



provided participants with direct experience in intercultural interaction, reflection on global citizenship, and collaboration with the village community. Participants also gained technical understanding and practical skills in assembling and installing the hydram pump, which successfully operated and lifted water to the planned distribution point during the trial run.

The integration of technical learning, community participation, and cross-cultural reflection demonstrates the potential of ISL to connect community needs with experiential learning. The activity also established initial communication and collaboration among participating higher education institutions and the village community. However, the long-term sustainability of water access and its effects on operational costs were not evaluated in this activity; therefore, further monitoring is needed to assess the medium-term technical and community impacts of the hydram pump installation.

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