REQUEST FOR QUOTATION FOR SERVICES

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Tailoring of the Coldtivate app to support digital operation of solar-powered cold rooms in the state of Odisha, India, for more efficient, transparent, and traceable monitoring

BASE Foundation is seeking services for a software development company to support the further development of the Coldtivate app, which will serve as a digital management system in at least 25 cold rooms across the state of Odisha, India.

The app provides real-time instructions to guide smallholder farmers in Low and Middle Income Countries on how to control storage of products to minimise food loss, and on when to sell the produce to maximise market value. The software interacts with different modules using machine learning and physics-based food modelling. The app is available open-source and for download on Android and iOS. We are looking for a software developer company to further develop the app, provide maintenance of the existing modules, and potentially build a long term relationship with BASE for further developments within the app (this component is beyond the scope of this RfQ).

Proposals should be submitted electronically before **EoB CET January 15th, 2026**. The quote submission details are outlined in Section 3 below.

1. Context

1.1 Background on BASE Foundation

The BASE Foundation is a Swiss non-profit organisation and a specialised partner of the UN Environment Programme (UNEP). Since 2001, BASE has been turning climate ambition into action by developing, testing, and scaling innovative business models, financing strategies, and digital tools which foster systemic market transformation and shift stakeholder behaviour and investment practices towards more sustainable and climate-aligned finance and operations.

1.2 Project background and objectives

In January 2021 BASE and Empa (Swiss Federal Laboratories for Materials Science and Technology) were awarded funding by data.org for the creation, implementation and deployment of an open source, data-science-based mobile application that uses machine learning and physics-based food modelling to help smallholder farmers access sustainable cold storage. Together with a pay-per-use servitization business model, the Your Virtual Cold Chain Assistant (Your VCCA, www.yourvcca.org) project aims to cut postharvest food loss and increase the income of marginal farmers in Low and Middle Income Countries (LMIC). To this end, BASE and Empa have partnered with local technology providers, i.e. companies managing and operating solar-powered refrigerated containers, which function as refrigerated walk-in rooms for farmers to safely store their produce to prevent food spoilage and preserve crop quality to get a higher price when selling the produce. These organizations generally own, maintain, and operate the cold rooms, and farmers pay a small fee per day and crate stored, without the need of any upfront investment to buy the equipment. The solution has been rolled out across 30+ cold rooms in India, Nigeria, Iraq, and Guinea-Bissau, with support from various donors including GIZ, REPIC, and ClimateWorks Foundation. For more information about the context of the project, we recommend watching these project videos: India, Nigeria.

The mobile application, named Coldtivate, is free to download and can be used on Android and on iOS. Its code and documentation are available open-source. The app can be used by cooling users and by organizations offering cold storage to digitally manage the inventory inside of cold rooms, remotely monitor temperature, revenue, and occupancy, predict the remaining quality of the produce stored in the rooms, and forecast market prices for multiple crops across India. Coldtivate also includes a digital marketplace, currently available for Nigerian users, for interested buyers to purchase stored produce directly from the app. This feature is yet to be deployed in India.

In November 2025, BASE was awarded by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) a 14-months grant to scale the adoption of Coldtivate in at least 25 solar-powered cold rooms across the state of Odisha, India. As part of this project, we are looking for a software development team that can support with tailoring and maintaining the Coldtivate app for the project duration, focusing on the following activities:

1. Improve user registration process to increase inclusivity;
2. Improve management of cooling users to support scale-up across 20+ locations;
3. Integrate 1-2 additional sensor types;
4. Review logic for notification of non-smartphone users;
5. Design and development of APIs for external dashboarding;
6. Improve scalability and access in low-connectivity areas;
7. Release marketplace functionality for Indian customers;
8. Application maintenance until December 2026.

These developments are crucial to enlarge the user base and ensure the sustainability of the solution. All planned features have been identified using a user-centred approach and validated with multiple stakeholders. More information about the envisioned activities is presented in Section 2.1.

1.3 Team composition and gaps

BASE's project team is based in Switzerland and brings extensive experience in designing and managing Your VCCA initiatives in collaboration with local stakeholders across the world. For this project, BASE will work in close collaboration with a set of India-based consultants who will be responsible for building the cooling ecosystem at the facilities.

The BASE software expertise lies mainly within the development of data science-driven models that are integrated as standalone modules in the application. While some team members have experience with software development, there is a gap to be filled for the development of the back-end software as well as the front-end of the mobile application. BASE is thus looking for a software development team to fill this gap in expertise and support with the further development of the Coldtivate app.

2. Scope of work

2.1 Objective

BASE is looking for an innovative, talented, and experienced software development team that can help the BASE team to further develop the data science-based mobile application Coldtivate.

The app features three user types: *registered employees,* who are representatives from the organizations managing and setting up the cold rooms, *operators,* who are the persons physically present at the rooms managing the interactions with the farmers, performing check-in and check-out operations at the cold rooms, and responsible to collect storage fees, and the *cooling users or consumers*, who are smallholder farmers and traders that are using cold storage, or individuals and organisations interested in purchasing produce stored in the cold rooms through Coldtivate marketplace (this feature is currently only available in Nigeria).

Coldtivate code and documentation are available open-source. In addition, the BASE and Empa team have developed a set of onboarding and training resources, freely accessible through the Your VCCA Onboarding Kit (free sign-up required). We strongly encourage all bidders to review the code and documentation, and to explore this material when preparing their proposals.

The scope of work includes the maintenance of the application and the tailoring of the software to meet the needs of the user base for the deployment of the app at 25 solar-powered cold rooms in the state of Odisha, India. The objective of this project is to improve the digital management and operation of cold rooms for more efficient, transparent, and traceable monitoring.

The scope of work does not include the development of the underlying models (physics-based models to predict food quality and machine learning models to forecast market prices), and isolated modules (Impact and Farmers Dashboard, App Impact Monitoring module), which have already been developed by the BASE and Empa teams.

The following activities are expected to be performed as part of this assignment:

1. **Improve user registration process to increase inclusivity.** The current sign up process does not cover all use cases identified across cold rooms in Odisha and therefore requires the following modifications:
    a. **Registration of multiple users without a phone.** Currently, check-ins for users who don't own a phone can be completed for a generic 'User without phone'. This means that check-ins for multiple users will be stored under the same

identity (the 'User without phone' user). Instead, we would like to allow operators to create multiple users without a phone, to be distinguished by their (first and last) name and User ID.

   b. **Support multiple users sharing a phone number.** We would like to revise the user identification logic to allow multiple cooling users to register using the same phone number, while ensuring each user is uniquely identified through a combination of phone number and User ID. This change is intended to accommodate households where multiple users share a single phone number but maintain distinct User IDs. The activity shall also include a review and update of existing validation rules to ensure that phone numbers remain unique for registered employees and operators, and that phone numbers used by operators or registered employees cannot be shared with cooling users.
   c. **Review options for account editing, upgrade and deletion.** This activity includes the possibility to edit all account properties (including phone number), improve the existing account deletion process, and ensure that users who joined the app as 'Users without a phone' or users with feature phones can 'upgrade' to become users with smartphones.

2. **Improve management of cooling users to support scale-up across 20+ locations.** To ensure a single organization can efficiently manage a large number of cooling units and associated users, we request the following improvements to the Cooling User page:
   a. Display cooling users by assigning them to one (or more) cooling units, where they have done a check-in. Users with no completed check-ins for the company should be not assigned to any room.
   b. Introduction of a filtering option to selectively display cooling users per location and room.
   c. Include an option to search cooling users by name, User ID, and phone number.

   These updates should be applied to all screens where lists of cooling users are displayed, including in the management page, as well as during check-in and check-out.
3. **Integrate 1-2 additional sensor types**. To ensure that all cooling units selected for the project have temperature and humidity sensors connected to the Coldtivate app, we anticipate that 1-2 new sensor types should be connected to the app. Candidate sensor providers include Inficold, Ecosaras, and Ice make. This activity also includes stress-testing existing sensor connections and ensuring regular updates of temperature data for digital twin computations and graph plotting.
4. **Review logic for notification of non-smartphone users.** The majority of cooling users in the target cold rooms in Odisha do not own a smartphone. This activity aims at reviewing and improving how non-smartphone users are notified about check-in and

check-out operations, expiring crates, purchased quantities, impact surveys, and how the operators support the information flow for users without a phone.

5. **Design and development of APIs for external dashboarding.** To enhance monitoring and oversight capabilities for cold room owners, a web-based dashboard is being developed. To reduce reliance on manual data entry, the software team shall design and implement a set of secure and well-documented APIs that expose relevant operational and performance data from the Coldtivate platform. The data made available through these APIs shall be comparable to the information currently accessible under the *Analytics* tab for operators and registered employees (i.e. data on users, utilisation, revenues, and impact). These APIs will enable seamless integration with the external dashboard. The design and development of the dashboard itself are explicitly excluded from the scope of this Request for Proposals.
6. **Improve scalability and access in low-connectivity areas.** To improve application scalability and usability in low-connectivity areas, the software team shall continuously monitor application performance and reliability. Existing issues already identified through Sentry monitoring, as well as insights from direct user feedback, shall be reviewed and assessed. Together with the BASE team and local consultants, the team shall prioritize the most critical issues affecting performance, stability, and accessibility, and implement corrective actions for a defined subset of high-priority items (up to ten issues). The focus should be on resolving issues with the greatest impact on end-users operating in low-bandwidth or intermittent connectivity conditions.
7. **Release marketplace functionality for Indian customers.** This activity includes all necessary modifications to allow Indian users to complete purchases via Coldtivate marketplace, including considering the integration of a digital payment method (Unified Payments Interface, UPI) or a Cash-on-Delivery mechanism. This activity should be considered optional.
8. **Application maintenance until December 2026.** The software team shall provide ongoing maintenance and support for the application through December 2026. This includes routine bug fixes, performance and security updates, monitoring of system stability, and timely resolution of issues to ensure the continued reliable operation of the application throughout the maintenance period. The proposal shall specify the estimated number of support hours required for pilot activities across 25 cold rooms, the expected response times, and the associated budget.

BASE is seeking services for the period **January 2026 - December 2026 (12 months),** aligned with the project timeline. Subject to mutual interest, successful collaboration, and availability of funding, there is a strong possibility to extend the engagement to include the development of additional features and/or an extended maintenance period.

2.2 Timeline

Below we present a tentative timeline to clarify project priorities and expected workload distribution. As such, the table is only intended to serve as an indication and will be refined upon project initiation.

Activity	Completion date
Activity 1: Improve user registration process to increase inclusivity.	By 28 February 2026
Activity 2: Improve management of cooling users to support scale-up across 20+ locations.	By 28 February 2026
Activity 3: Integrate 1-2 additional sensor types.	By 31 March 2026
Activity 4: Review logic for notification of non-smartphone users.	By 31 March 2026
Activity 5: Design and development of APIs for external dashboarding.	By 31 March 2026
Activity 6: Improve scalability and access in low-connectivity areas.	By 31 May 2026
Activity 7: Release marketplace functionality for Indian customers (optional).	By 31 May 2026
Activity 8: Application maintenance until December 2026.	By 30 December 2026

2.3 Tech stack and prerequisites

To ensure high efficiency and clear requirement definition throughout the project, a close collaboration is needed between the software developers, the local consultants, and the BASE teams.

The mobile application has been developed using the following technologies:

- Backend: **Python (Django), Docker**
- Frontend: **React Native**
- Database: **PostgreSQL**
- Hosting (test and production environment): **Microsoft Azure**
- DevOps: **GitLab CI/CD**
- Project management: **Notion/GitLab**

We are looking for a team who masters these technologies to avoid the need of replicating / migrating the infrastructure on different systems. Additional requirements include:

- Experience with mobile app development and deployment on Google Play Store and App Store;
- Desired but not necessary: familiarity with machine learning, COMSOL Multiphysics software and Xvfb display server, i18n translation tool.

3. Submission of quotation and evaluation criteria

Quotations should be submitted in English before the deadline specified below.

Please include the following information:

- Consultant's Organisation:
    - Briefly describe your background / the background of your consulting firm / organisation;
    - Provide a brief description or profile of the key team personnel that would be working in the project and the sub consultant(s) that your consulting firm proposes to engage for this assignment. Describe their role.
- Consultant's Experience: Provide work samples and past experiences of consultant(s) in similar or related projects, where possible.
- Comments and suggestions to this Request for Quotation: Present and justify any modifications to the RfQ your consulting firm would like to propose, if there are any, to perform the assignment better and more effectively (e.g. deleting some activity that you find unnecessary, adding others or proposing a different phasing of the activities). Such suggestions should be concise and incorporated in your Proposal.
- Description of Approach, Methodology, Work Plan and Budget overview: It is suggested that you include the following sections:
    - technical approach or methodology
    - work plan
    - budget allocated to the latter. Please provide a **time and budget estimate for each of the features listed in section 2.1 separately.** We also welcome a min-max estimate if needed.

Questions and clarifications:

Please send your questions to Roberta Evangelista, roberta.evangelista@energy-base.org and Simran Singh, simran.singh@energy-base.org.

Please send quotes via email to:
Roberta Evangelista, roberta.evangelista@energy-base.org and Simran Singh, simran.singh@energy-base.org.

Deadline for submission: **EoB CET January 15th, 2026**.

Quotes will be evaluated and selected based on the principle of best value for money. This includes quality/suitability as well as price criteria.

1. Quality and suitability of the proposal including:
   - Demonstrated understanding of the objectives and scope.
   - Suitability and quality of the approach on the proposed scope of work.
   - Relevance of company experience.
2. Price (the cost of additional suggested activities will be considered separately)

BASE may consider other value for money sub-criteria in the evaluation of proposals.

Further information:

The software development team is expected to collect any missing information from the BASE team and clarify the work structure and work plan for the development of the activities during the kick-off meeting and execution phase.

It is encouraged that the software development team suggests additional activities deemed necessary to reach the objectives.

The proposal must include the time frame of the implementation of the different activities.

All elements should be developed in consultation with the project team (led by BASE) and should be aligned with other project activities mentioned above.