



# INSPIRED

Bulletin of People in Need

Theme of this issue:  
INNOVATIONS



Alliance 2015  
towards the eradication of poverty  
[WWW.ALLIANCE2015.ORG](http://WWW.ALLIANCE2015.ORG)

ISSUE N° 1  
April 2017

People in Need

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**Cover photo:** From left: DRR Manager Paul Conrad, GIS Officer Seng Bunthoen, DRR Manager Harald Guelker (Action Aid), EWS Manager Lundi Vieng, and Mr Savong Driver. Kampot Province, Cambodia. July 2016. **Photo by:** James Happell, 2016.

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# Foreword

## Jan Mrkvička

Head of Relief and Development Department



Innovations. Everybody is talking about them. In science, industry, services, government as well as in our own sector of relief and development. It must seem that the idea of innovation is an entirely new concept. Of course, this impression is wrong. Every important step in the history of humankind has been a result of an innovation. I do not mean only inventions like iron smelting, irrigation, book printing or computer technology. Actually, many innovations have been social in nature. And without them, our civilization would not have been able to survive and prosper.

If we want to achieve our goal of finding sustainable solutions for marginalised people and eradicating poverty, we simply have to be innovative. Regardless of the fact that our formula of peace, education and good governance is well known and, in fact, not very innovative. However, many global factors, such as climate change, conflict, proxy war or population growth work against us. We must accelerate our efforts to cope with these circumstances. We cannot do development the way we used to.

The good news is that we have many opportunities and resources which enable innovative approach: many years of priceless experience, science, information and communication technologies, increasing engagement with the private sector as well as a growing number of people ready to contribute to the sustainable development of global society. Utilising all of them is not only an option available to us, it is our duty to employ them. Being innovative is not only about using new technologies, but also about cooperating with others, integrating different perspectives and identifying existing synergies.

# How People in Need understands innovations

People in Need understands innovations as **context appropriate solutions developed in a participatory manner and driven by needs of the poor.**

Innovations, increasing access to...



mobile networks  
and mobile phones



internet

and to new technologies in sectors that we work in  
(e.g. nutrition, health, education)  
can all be used

**to bring positive change to the lives of vulnerable people  
and to improve the quality, efficiency and scope of our work.**

PIN is committed to investing in piloting and scaling up these innovations while simultaneously collaborating with traditional and non-traditional development partners, such as universities, the private sector, the media, talented youth and others. As part of these efforts, PIN funds innovations in its country programmes through its annual internal PINnovations call.

# Opinion Poll

## What is your hope for the use of innovations in a humanitarian and development context?

**Marek Štys**

Head of Emergency Programmes



Utilisation of innovative approaches and new technologies greatly improves the relevance and accuracy of our data collection. This enables us to make better informed decisions and in return makes our aid better targeted, more relevant and timelier. Some great examples of this are presented in this bulletin. As the availability of mobile technologies has increased and access to internet in many remote corners of our planet has also improved, we, as providers of humanitarian assistance, should, more

than ever, communicate directly and effectively with affected populations. In this respect, my hope is that we will always be able to judge accurately whether "new" or "more" also means "better". I also hope that the use of modern technologies will not lead us to compromise our core values by undermining the human-to-human relationships with our beneficiaries which are so important in our work.

**Petr Schmied**

Knowledge & Learning Advisor



My main hope is that there will be many more innovations which are not only tested but, more importantly, scaled up at regional or global levels and integrated into existing systems. Coming up with new ideas is great and often also good fun, but it is longer-term effort, well

thought-out strategies and patience that bring these innovations to a scale that really makes a difference. This is where I would love to see much more energy and funding go!

# Opinion Poll

## What is your hope for the use of innovations in a humanitarian and development context?

### Petra Vránová

Deputy Director for Development Programmes



Innovations have underpinned core changes in the way we live. Indeed, they continue to do so. It has happened to all of us. Something we have been doing a certain way is suddenly made more effective or efficient by an innovation. In our work, too, innovations may hold the key to truly transformative change. That is why, as an NGO, it is important that we seek out innovations as a means to generate faster and more effective positive change in the

world. For innovations to lead to the desired results, we have to allow innovative solutions to be tested, adjusted and refined. And that requires creativity, commitment and a lot of hard work. My hope is that we see our programmes participate in this hard work, that we pilot innovations, that we scale them up based on evidence and, eventually, that we see the changes we seek in people's lives.

### Mesfin Gizaw

WASH Programme Manager in Ethiopia



The world has fundamentally changed, affecting each and every part of the humanitarian and development sector. What has worked in implementation of humanitarian and development activities to date may sooner or later stop working. So, I hope innovations will help us adapt humanitarian and development to new contexts, will make us think outside the box and will bring collaborations with new and unexpected stakeholders. In the

Water, Sanitation and Hygiene sector where I work, I particularly hope that innovations will provide effective solutions to puzzling problems such as the non-functionality of water sources. Innovations should be sought out and encouraged because, despite the inherent risk they hold, they can bring great rewards. A new Ethiopia requires new thinking and new practices!

## Comprehensive guidance on the use of SMART indicators

Contributed by Petr Schmied

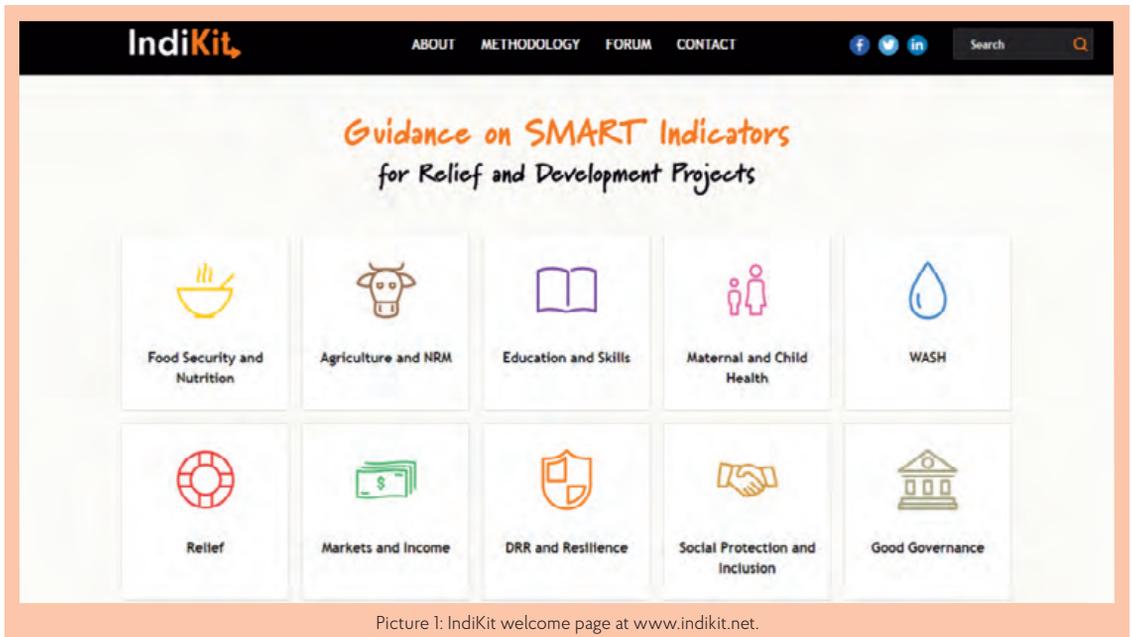
**IndiKit, a new tool developed by People in Need (PIN), aids practitioners so that they can improve monitoring and evaluation of their projects and share knowledge and experience. Since its introduction, IndiKit has provided guidance on the use of SMART indicators to dozens of PIN and partner organisations' projects and aspires to soon address the needs of the global humanitarian and development community.**

IndiKit ([www.indikit.net](http://www.indikit.net)) is an online resource of comprehensive guidance on the use of SMART indicators in relief and humanitarian projects. Developed by the Knowledge & Learning Department (KLD) of People in Need (PIN), IndiKit features guidance for 265 output, outcome and impact level indicators covering 10 different sectors<sup>1/</sup>. Guidance for every indicator includes: the indicator's full and exact phrasing (in English, French and Czech); explanation of its purpose and context; step-by-step guidance on the collection and analysis of data as required for the given indicator; and important comments regarding the indicator's use. If needed, links to additional guidance are also provided. Over a dozen brief guides and useful checklists alongside a simple sample size calculator offer additional help.

The IndiKit's design is very user-friendly. The website can be accessed even from computers and mobile devices with slow internet connections, making it possible to benefit from IndiKit's guidance when in the field. With simple design and available filters, the website is also very easy to navigate.

IndiKit's greatest value lies in the fact that it invites aid practitioners to share their knowledge, experience, recommendations or concerns. This important function is made possible through IndiKit's forum. In a model similar to Wikipedia, all aid practitioners can propose new SMART indicators to be featured in IndiKit, improve the existing ones or share lessons they have gained when using different indicators.

Development of IndiKit was funded by the Czech Development Agency and People in Need.

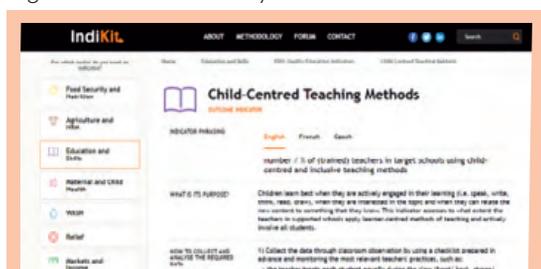


<sup>1/</sup> Sectors covered by IndiKit are the following: Food Security and Nutrition, Agriculture and NRM, Education and Skills, Maternal and Child Health, WASH, Relief, Markets and Income, DRR and Resilience, Social Protection and Inclusion, and Good Governance.

## CONTEXT

In order to achieve accurate Monitoring & Evaluation (M&E), M&E frameworks have to contain the right indicators and the indicator data has to be correctly collected and analysed. However, guidance on what indicators to use for what and how to use them is often scattered across dozens of different websites, manuals and other publications. This makes M&E a particularly time-consuming exercise that, despite a lot of effort, is still prone to mistakes. IndiKit was developed by the KLD to make this process much easier.

**IndiKit is a means of sharing highly valuable M&E know-how and strengthening our organisation's M&E capacity.** Most importantly, IndiKit aims to improve PIN's ability to measure the impact of its projects and support the organisation's overall ability to build evidence.



Picture 2: Example of IndiKit guidance on the use of indicator from the sector of Education and Skills at [www.indikit.net/indicator/6-education-and-skills/171-child-centred-teaching-methods](http://www.indikit.net/indicator/6-education-and-skills/171-child-centred-teaching-methods).

## IMPLEMENTATION

The idea of developing IndiKit originated in late 2015 from discussions in the Relief and Development Department on how to simplify and simultaneously improve the use of SMART indicators by PIN staff. The first step of the IndiKit development process was to discuss IndiKit's design and functions with its intended users, that is employees of PIN, Alliance2015 partners and other relief and development organisations, and thereby incorporate their feedback into the project. PIN has continued to seek and integrate feedback from sector specialists and partners throughout IndiKit's development process. If you find yourself in a similar situation, be ambitious and consult as many different organisations and practitioners with diverse backgrounds as possible. This simple exercise will provide you with valuable inputs from which your project will only benefit.

Following the discussions, IZON, s.r.o. was contracted to develop the website's design. At the same time, KLD advisors conducted extensive research into sector-specific indicators and started writing up all indicators and relevant guid-

” *IndiKit invites aid practitioners to share their knowledge, experience, recommendations or concerns.*

ance and putting together accompanying materials. The task was no small one: IndiKit's content is equivalent to a 700-page long book where each 'page' is written in the same style, despite being prepared by many different authors.

If you ever face a similar task, make sure that you either very clearly set the style in which the text needs to be written, or ask all contributors for the text in bullet points and determine skilled writers in your team to transform bullet points into the final text. You should also set your deadlines several months before your work really needs to be completed as delays are hard to avoid. Finally, if the high quality of your product is to be maintained in the long-term, get ready as if you were to run a marathon rather than a 10K run. In fact, finishing the product is only half of the work. Once your product is launched its management and further development will require more human resources.

## ACHIEVEMENTS

**To date, IndiKit has gathered step-by-step guidance for 265 SMART indicators from 10 different sectors.** Besides PIN, IndiKit has been promoted amongst almost 40 different organisations, primarily PIN partners and Czech NGOs. The IndiKit website has been accessed over 800 times since January 2017 and its indicator guidance has been used by more than 20 organisations in tens of logical and M&E frameworks.

## NEXT STEPS

As part of its international launch in May 2017, IndiKit will be promoted amongst hundreds of relief and development implementers, donors, consulting companies, global clusters, Alliance2015 partners, and M&E training providers. It will also be publicised through web, social media and Google advertisements. As for IndiKit's content, the number and quality of indicator guidance and possibly other information covered by IndiKit is expected to grow thanks to contributions coming from practitioners and IndiKit users. In the long-term, IndiKit's ambition is to become a popular source of useful and reliable support for relief and development practitioners all around the world. If you want to know more about IndiKit, contact Petr Schmied at [petr.schmied@peopleinneed.cz](mailto:petr.schmied@peopleinneed.cz).

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DEVELOPMENT COOPERATION



## KEYWORDS:

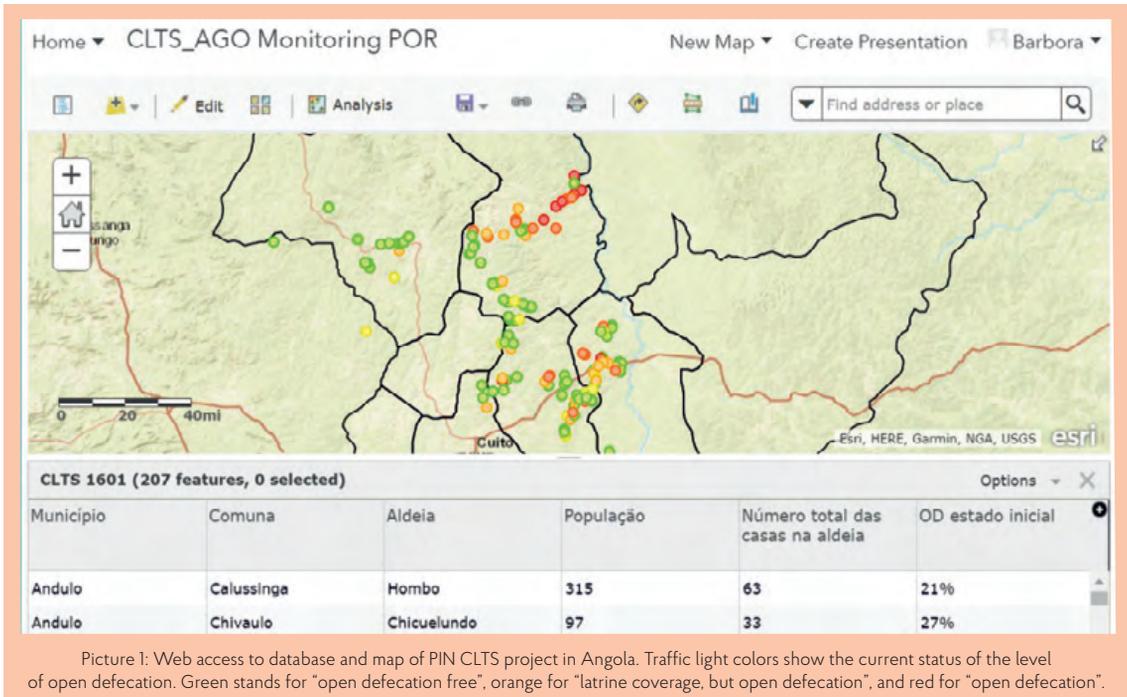
innovation, IndiKit, indicator, database, guidance, methodology, online, website, monitoring and evaluation, data collection, data analysis, output, outcome, impact

# Collector App

## Simplifying map-based collection of monitoring data

Contributed by Jan Faltus and Barbora Kořínková

PIN has started using the mobile application Collector for progress and post-implementation monitoring of its infrastructure-centred Water, Sanitation and Hygiene (WASH) activities in Angola and Ethiopia. The application enables PIN to shift to highly automated map-based data collection and to have uninterrupted access to real-time monitoring data.

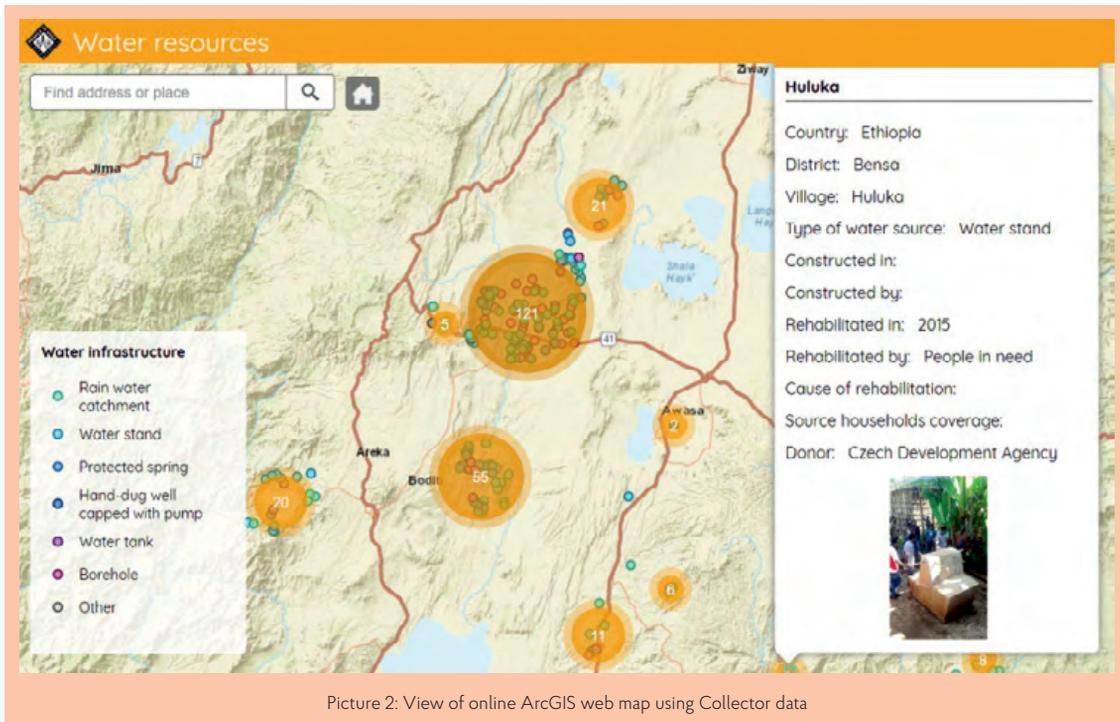


Picture 1: Web access to database and map of PIN CLTS project in Angola. Traffic light colors show the current status of the level of open defecation. Green stands for "open defecation free", orange for "latrine coverage, but open defecation", and red for "open defecation".

Collector is a mobile application which collects geo-referenced monitoring data and seamlessly updates them to an ArcGIS Online<sup>1/</sup> database. Collector simplifies communication and transmission of infrastructure-centred monitoring data between project team members and relevant co-workers and ensures that real-time data is ready in the required quality for immediate analysis and further use. PIN has recently introduced the application for purposes of implementation and post-implementation monitoring of its WASH infrastructure projects in Ethiopia and Angola. Collector can be downloaded for free from any app store and accessed using a PIN login to a PIN account registered on the Esri platform.

The application uses ArcGIS Online web maps containing vector shapefiles, which are a data format of an attribute table with geospatial reference (either point, line or polygon) (picture 1). Utilising a geographic information system (GIS), Collector collects static data (e.g. region, village or GPS) and dynamic data (e.g. population or number of latrines) which can be attributed to a location. It then uploads the data to a corresponding ArcGIS Online web map. **Collector can be easily used in the field.** The application can be downloaded to mobile devices, it uses GPS for easy navigation in the terrain and it allows for the collection of data without GSM or internet signal. Data collected using Collector is automatically uploaded to an

<sup>1/</sup> ArcGIS Online is a GIS mapping and spatial data analytics platform. It is produced by Esri. For more information see: [www.esri.com/software/arcgis/arcgisonline](http://www.esri.com/software/arcgis/arcgisonline)



Picture 2: View of online ArcGIS web map using Collector data

ArcGIS Online database once signal is available. Updated databases and web maps are available to anyone anywhere simply through a PIN account login. Collected data can be subsequently converted into CSV, KML or KMZ files<sup>2/</sup>, and used in Excel or Google Earth.

**The advantages of Collector are numerous.** Firstly, data can be collected even when out of GSM signal range or internet range. Secondly, synchronised and up-to-date databases are always available through the aforementioned account. Together with maps, they can be shared with working groups, external subjects or the public by publishing maps on a website (picture 2). Thirdly, the collected data has unified form and is thus ready for any analysis. An analysis of spatial patterns can be done directly in ArcGIS Online or in Excel sheet downloadable from the platform. The data can also be connected to other projects. For example, connection of data on village open defecation statuses has successfully presented the primary spatial idea for selection of borehole drillings in Angola.

## CONTEXT

Exchange of WASH monitoring data between head office or HQ and a project team in the field has often

been a struggle. Information flows have been delayed and susceptible to mistakes. Data sent in different formats, such as in spreadsheets, transcribed paper sheets or KMZ data, has further made unified and long-term monitoring a challenge. Simplification and systematisation of the long-term monitoring process therefore represents a highly desired improvement.

PIN has been using ArcGIS Online, Esri's global cloudbased mapping platform, since 2016. ARCDATA Praha, s.ro., distributor of Esri products in the Czech Republic, introduced PIN to Collector and its functions, enabling PIN to shift from manually-entered, time-consuming and mistake-prone monitoring data collection to highly simplified and automated data collection.

## IMPLEMENTATION

Several conditions need to be fulfilled for Collector to be successfully established and used as an infrastructure monitoring tool. Firstly, any already existing data has to be cleaned, unified, transformed to shapefile and uploaded to the ArcGIS Online web map. To collect new and update existing data in the database using Collector, a protocol must be set up in attribute table of the

<sup>2/</sup> CSV is a simple file format used to store tabular data, such as a spreadsheet or database. KML is a file format used to display geographic data in an Earth browser such as Google Earth. KMZ is a zipped file containing one or compressed KML files.

shapefile. In other words, you have to decide what data is to be collected and in what format.

Secondly, you need to make investments into mobile devices necessary for quick and precise data collection in the field.

Last but not least, you have to put the time and energy into properly introducing the new data-collecting tool and its benefits to your colleagues. **PIN HQ installed the application and uploaded existing maps of WASH infrastructure to purchased mobile devices, so that the application would be ready for use.** Afterwards, PIN conducted training for local staff on the use of the application and introduced them to protocols and guidance manuals. Enthusiasm of line managers is key if staff are to embrace the new tool. It is the line managers' drive to adopt the tool that will motivate staff to use it whenever possible.

As for collection of data itself, post-implementation monitoring of WASH infrastructure should take place at least every two years, as is the best practice of PIN partners, and should be included in the country programme's M&E plans.

## ACHIEVEMENTS

Since 2016 PIN has been piloting the use of Collector in Angola and Ethiopia for purposes of implementation and post-implementation monitoring of WASH projects. In Angola, Collector is used for monitoring the progress of the borehole drilling and levels of open defecation in the sanitation programme; and in Ethiopia for long-term monitoring of sustainability of WASH outputs.

The local WASH team in Angola received tablet computers with the application installed, as well as protocols and guidance manuals in Portuguese. They were also trained to use Collector. Consequently, Collector was used to monitor the overall progress of construction of about 200 shallow boreholes as part of a WASH programme, and to provide a systematic overview of the levels of open defecation in villages targeted by Community-Led Total Sanitation programmes. Village protocols in both cases feature between 14 to 20 data items, either static or dynamic. Through the use of traffic light colours, online maps then show the current status of either construction progress or the level of open defecation (picture 1).

**To date, PIN has managed to gather a total of 1510 points of WASH infrastructure in the post-implementation monitoring**

” *Collector’s applicability goes well beyond WASH projects as, in fact, the application can be of great benefit to all PIN infrastructure-centered projects.*

**database.** In Angola and Ethiopia, Collector updated data about water sources are ready for M&E analysis at a sustainability level.

## NEXT STEPS

PIN is currently troubleshooting the use of Collector. At the moment, the priority is to smoothen the synchronisation of Collector-assembled data with the ArcGIS Online platform, which is currently hindered by poor internet connection.

PIN is also developing an organisation-wide post-implementation monitoring database envisaged for long-term and project-independent monitoring of WASH infrastructure outputs. All available data from PIN country programmes with WASH infrastructure is currently being uploaded into the database.

The Collector application and the long-maintained ArcGIS Online database represent powerful tools for simplified and automated collection and analysis of data based on geographical distribution. Collector's applicability goes well beyond WASH projects as, in fact, Collector can be of great benefit to all PIN infrastructure-centred projects. Collected data can help project managers map schools and health posts, monitor distances to services, or analyse spatial patterns of agriculture and the environment. The application can be used equally well in an emergency context. The greatest value of the tool is that long-term monitored data can be easily updated and databases can therefore be kept “alive”. Information about long-term functionality of WASH or other outputs provides a great basis for analysis, evidence building and lessons which can be learnt. If you are interested in more information about Collector, contact Jan Faltus at [jan.faltus@peopleinneed.cz](mailto:jan.faltus@peopleinneed.cz) or Barbora Kořínková at [barbora.sachova@peopleinneed.cz](mailto:barbora.sachova@peopleinneed.cz).

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## KEYWORDS:

innovation, Collector, data collection, data analysis, mobile, application, GIS, mapping, database, monitoring and evaluation, WASH, Angola, Ethiopia

# WaterReport

## Achieving sustainability of water resources

Contributed by Jan Faltus

WaterReport, an innovative communication system co-developed by PIN, has in the last three years significantly contributed to an increase in the functionality of water sources in Halaba Special Woreda in Ethiopia. Enabling effective communication between communities (i.e. water source users), different levels of the authorities responsible and authorised service providers, WaterReport supports efficient management of water sources and ensures long-term sustainability of water sources.



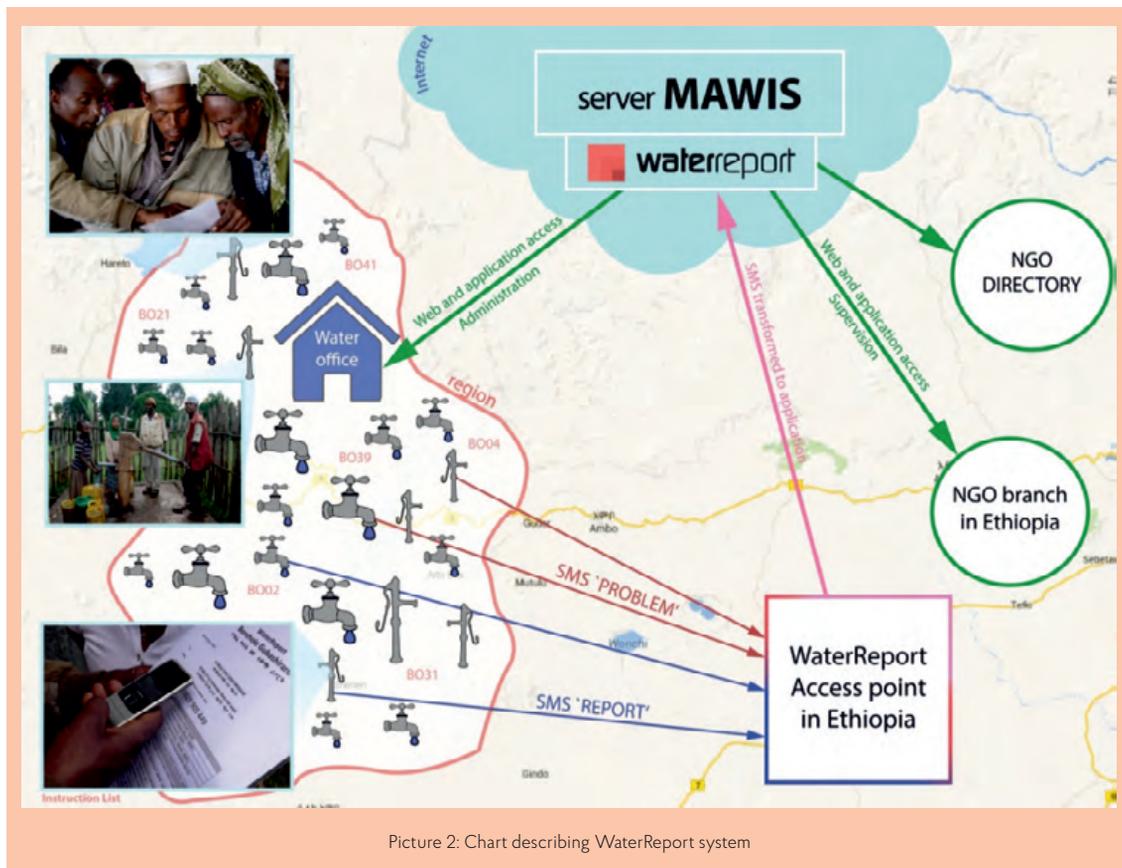
Picture 1: Comic describing how WaterReport helps to improve functionality of water sources

WaterReport is an innovative communication system which enables responsive management of water sources. In Ethiopia, PIN uses WaterReport to ensure effective communication between water committees (WASHCOs), government water administration offices and service providers, who are supervised by PIN. This improves monitoring and functionality of water sources and ultimately increases the access to drinking water by the local population.

WaterReport is a result of collaboration between PIN and Hrdlička, s.r.o, a Czech geodetics company, and its

development and use is funded by the Czech Development Agency.

Water Report is built on a combination of mobile phone and internet systems. **WASHCOs share regular operational data with water offices and request repairs in cases of malfunction of a water source through simple coded mobile phone text messages.** The text messages take the form of either a performance report or a problem report. Water offices receive and view reports from WASHCOs through an online dashboard. If there is no prompt reaction from the water office, a reminder text message is sent



automatically on behalf of WASHCO (picture 1 and 2). All reports are electronically stored and water offices can display them in a map or a filterable table (picture 3). Responsible water offices have therefore a clear and comprehensive overview of borehole conditions which they can use for swift repairs of water sources as well as for important strategic and investment decisions.

WaterReport is a unique tool that standardises communication between WASHCOs, water offices and service providers. It empowers water scheme users and increases transparency of and accountability for water management and as such, it is an effective means for ensuring the sustainability of water sources.

## CONTEXT

PIN has been operating in Halaba Special Woreda, an agriculture dependent region of Ethiopia which has been suffering from droughts and a lack of surface water sources for over a decade. PIN has reconstructed existing boreholes, built new ones and has been teaching local communities to efficiently manage and use water

schemes in the area. However, despite significant efforts, 30 to 40% of decentralised water schemes were remaining non-functional. This was mainly due to delayed repairs of damaged boreholes, especially in remote locations. It was taking an average of 15 days for repair requests to reach the respective water offices and then weeks longer still for local government or authorised service providers to respond. The authorised service providers did not have means of effectively responding to water source users' needs. Furthermore, decision makers at higher administrative levels had very limited means of supervising service providers' performance and holding them accountable. Meanwhile, people were left with limited access to drinking water. Issues of this kind are of significant concern to the whole of Ethiopia, not only areas where PIN operates.

In 2013, Hrdlička, s.r.o. approached PIN and introduced it to the concept of ProblemReport, a system used in the Czech Republic for residents to report public service shortcomings to service providers, e.g. potholes in roads or broken park benches. Drawing from the experiences of both organisations, PIN and Hrdlička, s.r.o. developed

hand-in-hand WaterReport for water source management in Ethiopia.

## IMPLEMENTATION

Following consultations with local authorities and the WaterReport provider regarding function, design, operational issues and so on, PIN equipped WASHCOs and the water offices with the necessary equipment. WASHCO members, water office staff and community-elected operators were then trained in using WaterReport.

Given that WaterReport is to be eventually managed entirely by local government, proper presentation of the system and its acceptance by local stakeholders is key. PIN introduced WaterReport to local authorities and communities in 2014 and has since been tirelessly promoting it among developing partners and other relevant stakeholders since, eventually gaining support from UNICEF and others.

## ACHIEVEMENTS

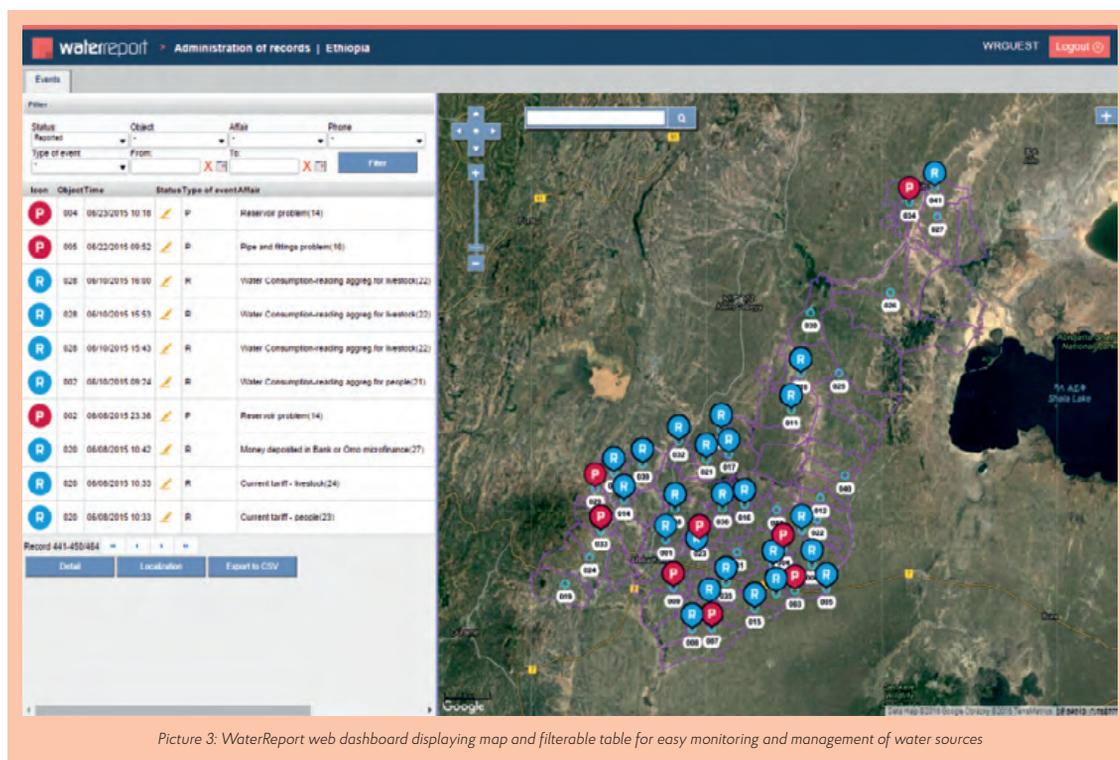
Between 2014 and 2015, WaterReport was piloted in 10 villages in Halaba Special Woreda and, in 2016, it was scaled to a further 33 villages, thus covering all 43 district

” *WaterReport increases transparency, enhances accountability, empowers communities and facilitates their active participation in the management of water sources.*

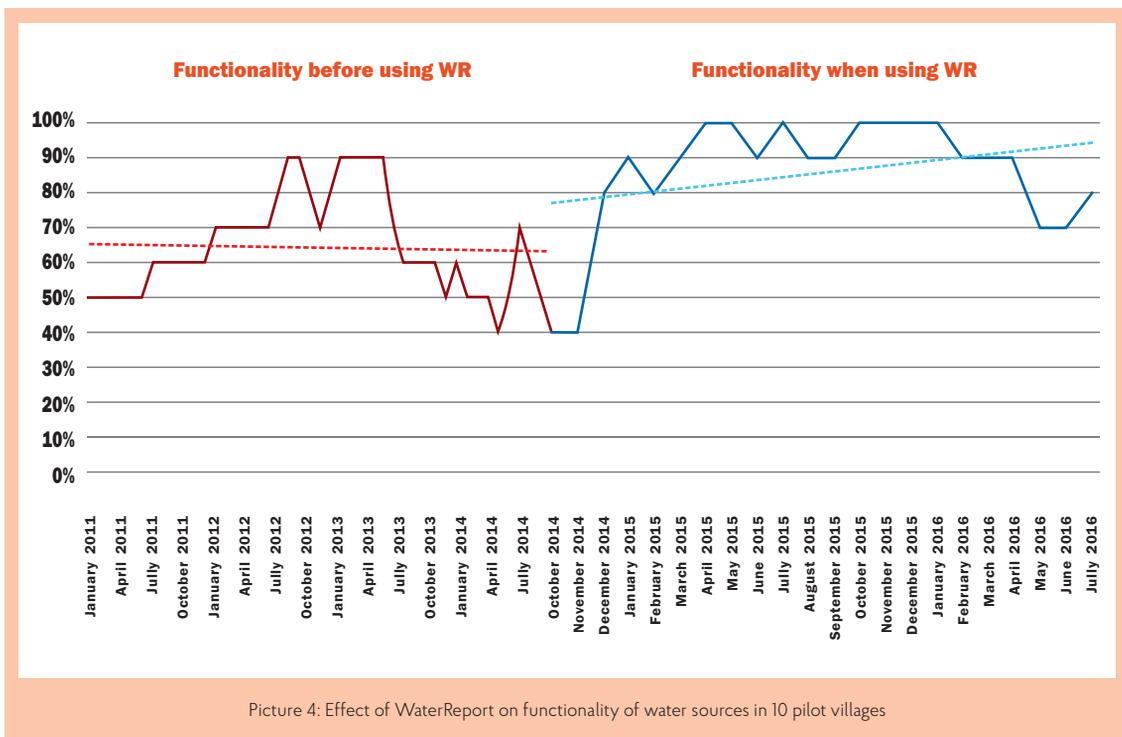
villages in total. **By the end of 2016, WASHCOs had sent in 345 performance and 100 problem reports through WaterReport.** Since WaterReport’s introduction, the overall functionality of WaterReport covered villages increased by almost 14%, from 67,5% in 2011 to 81,4% in 2016.

WaterReport has been positively received. WASHCOs report improved communication with water offices. In return, water offices describe that they have comprehensive, systematic and remote supervision over water sources, that they are involved to a higher degree in their management and maintenance and that they are able to make well-informed decisions on resource allocations.

As for PIN, WASHCOs continue to require PIN follow up and their reports are yet to become more regular and free from mistakes. Regardless, responsible government offices and PIN have now a means of tracing major types of repair issues and adapting its mechanic training curriculums accordingly.



Picture 3: WaterReport web dashboard displaying map and filterable table for easy monitoring and management of water sources



## NEXT STEPS

PIN currently uses WaterReport as a means of monitoring and improving maintenance of water sources. However, in the long term, it is envisaged that WaterReport will ensure sustainability of WASH outputs by facilitating cooperation between different levels of water authorities. In Ethiopia, local water authorities manage information coming from community water committees, solve repair issues and analyse regular performance data, while regional water authorities supervise and monitor functionality, performance and efficiency of local authorities. **Regional water authorities will eventually become the owners of the system, covering operational costs and technical support for WaterReport.** The authorities will also decide on new locations for the system as it is scaled up and will cover its costs from water sale revenues. Easily scalable, WaterReport's ambition is to potentially become part of the Federal ONE WASH National Programme in Ethiopia.<sup>1/</sup>

The concept and technology behind the WaterReport system can also be used in contexts other than WASH. Good governance and civil society projects are particularly well positioned to benefit from the system, which increases transparency, enhances accountability, empowers communities and facilitates active participation in public affairs. If you are interested in more information about WaterReport, contact Jan Faltus at [jan.faltus@peopleinneed.cz](mailto:jan.faltus@peopleinneed.cz).

### DONORS AND PARTNERS:



### KEYWORDS:

innovation, WaterReport, public services, communication, sustainability, WASH, Ethiopia

<sup>1/</sup> For more information about Federal ONE WASH National Program in Ethiopia, go to: [www.unicef.org/ethiopia/OWNP\\_LEAFLET.pdf](http://www.unicef.org/ethiopia/OWNP_LEAFLET.pdf)

## Strengthening community land rights using modern technology

Contributed by Piotr Sasin

**iTenure, a new software tool co-developed by PIN and introduced in Cambodia, helps eviction-prone households to strengthen their land tenure claims and prevent land conflicts. Producing highly cost-effective household-specific information packages, iTenure provides vulnerable communities with easily digestible information on the status of their land claims and legal advice on how to secure appropriate land titles.**

iTenure is an innovative software tool that conducts legal analysis and evaluation of household-specific land claims. iTenure uses geographic, legal and other supporting data for legal analysis of a household's land title and produces a customised information package. Each package contains a map of the household, a report and legal advice on how one may strengthen a land claim if at all possible. The packages are available in two languages (English and Khmer) and two formats (written and audio). Thanks to the Interactive Voice Response system (IVR) system, each claimant can access their report and advice sheet in audio format by calling a number and entering the code supplied in their information package or by downloading an application onto their smartphone.

**” iTenure far outperformed previously employed methods, ultimately empowering 92% of beneficiaries to confidently communicate their land tenure issues with local authorities.**

iTenure was developed by PIN in cooperation with Open Institute.<sup>1/</sup> It sources its data from Open Tenure<sup>2/</sup>, a data collection application developed by the Food and Agriculture Organization. The development of iTenure was funded by the Czech Development Agency and EuropeAid.

iTenure represents a substantial upgrade to the previous PIN projects which were implemented in Cambodia. These consisted of training in law for household owners and manual production of household-specific information packages by law experts. iTenure significantly reduces the amount of time necessary for the production of household-specific legal information packages (reduced from 12 hours to 45 minutes per package) and the volume of work for expert land lawyers. Thus, this lowers the overall costs of the service provided by iTenure and makes it feasible to expand this free-of-charge service to other vulnerable communities. Additionally, **iTenure can be adapted to any legal frame-**

**work and language, holding a great potential for its use in other contexts as well.**

### CONTEXT

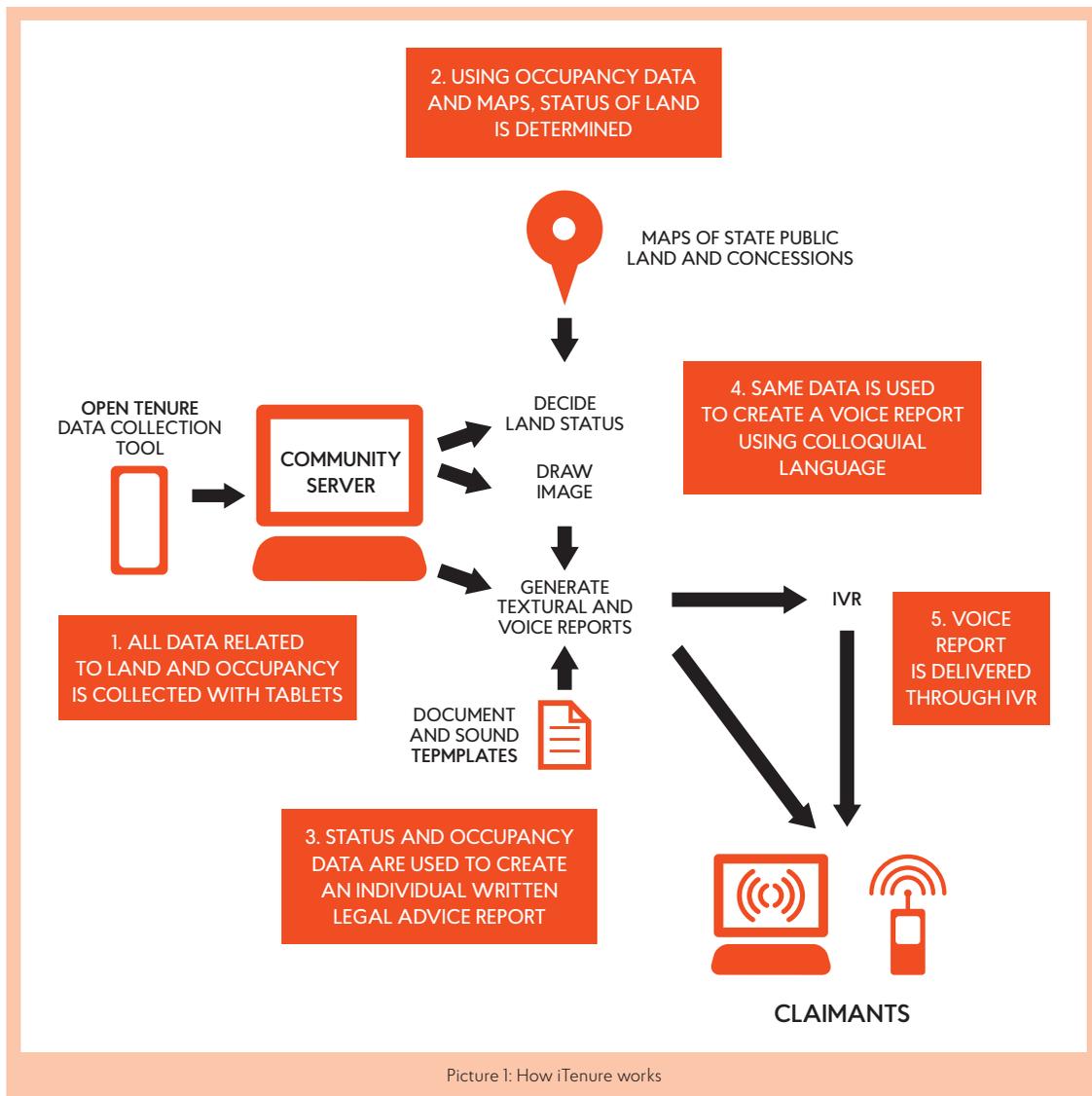
In Cambodia, thousands of people are affected by land conflicts. Therefore, PIN has been implementing since 2014 activities supporting communities which are under threat of eviction. The country's regulations regarding land expropriation, titling and conflict resolution are complex and citizens are often not aware of their situation, of their rights, and of the legal processes relevant to land tenure security. In addition, land plots of poor families, especially when located in desirable areas, are often excluded from systematic land registration programmes as they are deemed as being “too complex” or having an “unclear status”. Consequently, uninformed and impoverished households who are prone to eviction and land conflicts are left without land titles, are in a constant state of land insecurity, and thus exposed to violations of their rights.

As part of the awareness raising campaign, PIN initially implemented so called “land law” training. Such training covered numerous topics, from legal concepts to procedural advice, and normally took several hours to conduct. While important for capacity building of communities, beneficiaries whose land tenure statuses differed wildly ultimately considered training of little help because it provided only general and vague information which were not well received by the authorities.

For these reasons, in 2014 and 2015 PIN prepared personalised legal advice packages for all target households. Information packages contained basic household information, plot characteristics, a map with basic geospatial information, legal analysis and legal advice. These were disseminated to each household in person and their content was summarised and explained to the residents of each household. Packages were complemented by general workshops for the community, as well as putative

<sup>1/</sup> For more information about Open Institute, go to: <http://open.org.kh/?q=en>

<sup>2/</sup> For more information about Open Tenure, go to: [www.flossola.org/index.php/solutions/open-tenure](http://www.flossola.org/index.php/solutions/open-tenure)



Picture 1: How iTenure works

referrals to local partner civil society organisations (CSOs) for legal consultations. Although 75% of beneficiaries found plot-specific legal packages useful, only 33% planned to benefit from the provided legal advice and to strengthen their land tenure status. Beneficiaries also considered packages difficult to understand as they employed unfamiliar legal language. In addition, preparation of packages was very time consuming and their content could not be altered once entered into a database. Systemisation of the provision of legal assistance was thus deemed highly desirable.

## IMPLEMENTATION

Process of developing iTenure comprised several steps. Firstly, the project team assembled comprehensive infor-

mation necessary for provision of accurate legal analysis and advice. A law expert studied all land laws and relevant regulations in Cambodia. On the basis of these findings, PIN put together a questionnaire to ensure that all important data would be recorded. PIN also compared geo-referenced elevation photos of the area occupied by the target population with data on public and private owned land in order to determine the strength of land claims.

Afterwards, PIN developed the logic of the iTenure application. Based on the physical location of the claimed plot and information provided through the questionnaire, **each piece of claimed land would fall into one of six pre-determined land tenure categories**. Each land tenure category was then matched with relevant legal advice.



Picture 2: Interviewing household owners regarding their land claims.

Subsequently, Open Institute developed a beta version of iTenure. A system for the generation of audio files was also developed at this stage. Once ready, the beta version was field tested and all the bugs were fixed. Finally, PIN translated all reports from English to Khmer, and developed and recorded legal advice scripts using colloquial Khmer, so that the information would be easy for everyone to understand.

## ACHIEVEMENTS

So far, iTenure has been piloted on 523 families living in Phnom Penh, Cambodia's capital. PIN evaluated iTenure's use in January 2017 and received very positive results. iTenure far outperformed previously employed methods in terms of usefulness, clarity, beneficiary confidence and empowerment. PIN's survey showed that 99% of beneficiaries found the legal advice useful, 86% found it fairly clear, 92% felt more confident communicating land tenure issues to local authorities and 93% planned on taking active steps to strengthen their tenure status. In addition, the use of iTenure resulted in the

active engagement of local authorities in data collection. This is a very positive sign given that local authorities are often not aware of the legal complexities of land tenure in the areas they administer.

## NEXT STEPS

PIN plans to expand the use of iTenure to rural areas in Cambodia. Thanks to flexibility of the tool, PIN also envisages employing this tool in another country or region and adapting it to a different legal framework. If you want to learn more about iTenure, contact Piotr Sasin at [piotr.sasin@peopleinneed.cz](mailto:piotr.sasin@peopleinneed.cz).

### DONORS AND PARTNERS:



Food and Agriculture  
Organization of the  
United Nations



## KEYWORDS:

innovation, land tenure, land rights, land claim, data collection, data analysis, legal analysis, empowerment, evictions, Cambodia

# Help for Donbass

## Improving access to humanitarian assistance for beneficiaries

Contributed by Petr Schmied

Help for Donbass, a new online platform, is providing information about available livelihood assistance to populations affected by the conflict in Eastern Ukraine. Responding to particular needs as expressed by local people, the PIN-developed website has attracted thousands of visitors since its launch in March 2017.



Picture 1: Help for Donbass welcome page at [www.helpfordonbass.org](http://www.helpfordonbass.org)

PIN introduced the Help for Donbass website with two main goals in mind. Firstly, PIN wanted to ensure that as many providers of livelihood assistance as possible would share information about the assistance they had to offer. Secondly, PIN wanted to ensure that this information would reach the maximum number of conflict affected people who needed such assistance to recover their livelihoods.

The website features information about various types of assistance: financial support for the self-employed, job search assistance and requalification courses for job seekers, financial support for companies creating employment, financial support for homestead food productions, and financial and technical assistance for service providers. The website's design is very user-friendly. It allows users to easily filter through the assistance available based on their geographical area of interest. The website is available in two languages. The Russian version is accessible at [www.помощьдонбассу.org](http://www.помощьдонбассу.org) and the English version at [www.helpfordonbass.org](http://www.helpfordonbass.org). The website is administered by part-time PIN staff who manage and gradually expand its content.

The Help for Donbass website was developed by PIN in cooperation with IZON, s.r.o, a Czech web design provider, and was funded by the United Kingdom's Department for International Development (DFID).

## CONTEXT

PIN has been operating in the eastern part of Ukraine since the very start of the conflict in 2014. While a number of organisations offered various types of livelihood assistance, many people were not aware of these opportunities. Comprehensive information about the assistance on offer was shared among aid providers within various cluster meetings only to a certain extent. Additionally, the few volunteer-run online sources on what aid was available often contained out-of-date or incorrect information. On top of this, widespread misconceptions about the support on offer made some people hesitant to apply for it.

In reality the **local population had only very limited knowledge about what assistance was accessible to them**. This became strikingly obvious when one day three local men walked into a Food Security Cluster

meeting of aid providers and requested them to provide better information on what assistance was available and how they could access it. This episode prompted PIN to conduct a survey which confirmed that while aid providers tend to know the “3Ws” (Who is doing What and Where), people who most needed their assistance often knew little about how they could access it.

In an environment where most people can access the internet, on-line communication through a user-friendly website seemed the best solution for the dissemination of information on where people could find livelihood assistance offered by NGOs, government agencies or private sector actors.



Picture 2: List of support provided in Kremina in Luhansk region

## IMPLEMENTATION

Following an initial discussion within PIN about the website idea, PIN presented it to its partners at the next meeting of organisations providing livelihood assistance. At the same time, PIN approached responsible cluster representatives and other providers of livelihood assistance, both governmental and non-governmental. PIN's proposal received overwhelmingly positive feedback from all the parties who were approached, including State Employment Centers. However, securing practical support for and commitment to the website could not be assumed. A lot of effort was put into consulting the website's development process with the fellow aid providers and encouraging them to contribute information to the website. However, in the end, many of them committed themselves to contributing information to the website only once they were shown the final product and could observe that other organisations have started contributing to it.

While initially the website was expected to be regularly updated by the aid providers themselves, it soon became clear that PIN would have to take a more pro-active role in ensuring that the website contains up-to-date offers of livelihoods assistance. When undertaking a similar project, make sure that you have at your disposal sufficient

” Ensuring that people know how to access assistance can be as important as providing it.

human resources (part-time or full-time staff) to keep the website updated and “alive”. It is important to realise that developing a website is only the beginning. Its full potential can only be reached, in terms of content and reach, with a lot of follow-up work and commitment. In this case, **PIN had to invest in a part-time employee who is responsible for the website's management, including finding new types of livelihoods assistance, communication with aid providers, verification of information provided and updating the website's content.**

Finally, the website has been promoted through a number of channels. Social media, particularly Twitter, is one of main channels for the website's promotion, drawing almost 70% of its traffic. The website is also promoted through websites of recruitment agencies, through news articles published at various news portals and through PIN print material.

## ACHIEVEMENTS

The Help for Donbass website has been developed and its team assembled. The site was launched and made available to the public in mid-March 2017. **In the first two weeks of its existence, it was visited by over 5,000 people.**

## NEXT STEPS

Ensuring that people know how to access assistance can be as important as providing it. An innovative solution introduced in the context of Ukraine can be replicated in many other contexts where agencies offer assistance of which people might not be aware. If proven successful, this innovation could potentially lead to the creation of a new global online platform which could be automatically activated in situations of sudden-onset emergencies and which could inform people on what support they could access. If you are interested in knowing more about Help for Donbass, contact Petr Schmied at [petr.schmied@peopleinneed.cz](mailto:petr.schmied@peopleinneed.cz).

### DONORS AND PARTNERS:



### KEYWORDS:

innovation, Help for Donbass, emergency, beneficiaries, information sharing, online, website, empowerment, Ukraine

## Mobile technology for improved maternal and child health

Contributed by Camila Garbutt

**Mobile technology mHealth provides key life-saving health information, through the form of voice messages, to the mobile phones of pregnant women and new mothers in the Kampong Chhnang, Kratie, Koh Kong and Phnom Penh provinces of Cambodia. In the areas where mHealth was implemented, PIN witnessed substantial improvements in maternal and child health practices, as well as a reduction in neonatal mortality rates.**

mHealth is a voice messaging system which communicates key recommendations for a healthy pregnancy and for the first two years of a baby's life to the mobile phones of pregnant women and new mothers. The messages have been designed to come from five influential characters from the community: three female (a midwife, a village volunteer and a grandmother) and two male (a doctor and a village chief). This encourages both the father and the mother to engage with the recommendations provided.

With the aim of reducing maternal and child mortality, PIN developed mHealth to improve maternal and child health practices and help with the early detection of danger signs in pregnant women and babies. Based on a similar programme in Bangladesh, PIN created mHealth in part-

nership with the Open Institute<sup>1/</sup> and InSTEDD<sup>2/</sup> who assisted in developing the software and mobile infrastructure, as well as with 17triggers<sup>3/</sup> who were involved in developing the mHealth messages and concept. mHealth uses Interactive Voice Response (IVR) technology provided through InSTEDD's open source platform called Verboice<sup>4/</sup>. The development of mHealth was funded by the Czech Development Agency and USAID.

### CONTEXT

Cambodia, where PIN has been operating since 2008, continues to have one of the highest infant mortality rates in the region. Traditional practices and low awareness of the danger signs during pregnancy and after



Picture 1: Testing of mHealth messaging

1/ For more information about Open Institute, go to: [www.open.org.kh/en](http://www.open.org.kh/en)

2/ For more information about InSTEDD, go to: <http://instedd.org>

3/ For more information about 17triggers, go to: [www.17triggers.com](http://www.17triggers.com)

4/ For more information about Verboice, go to: <http://verboice.instedd.org>

” *mHealth provides culturally appropriate voice-messages that can save the lives of mothers and newborn babies*

childbirth can reduce both the mother and child’s likelihood of survival. Access to health education, particularly in rural areas, is challenging for many Cambodian families. This causes situations where mothers or caregivers tend to go to the health clinics only when the situation is very severe and when it could be too late to reverse.

Mobile phone use is widespread in Cambodian society. Almost 90% of the population own a cell phone. In rural hard to reach communities, mobile phones can be an efficient channel for information dissemination. However, literacy levels especially among rural women are low and most mobile phones are not compatible with the local language that requires a Khmer font. That is why PIN used IVR technology.

## IMPLEMENTATION

To ensure cultural acceptance and overall effectiveness of the service, **PIN conducted formative research to design the messaging.** This research informed the key information to convey, the length of the message, how frequently and at what time of day the message should be sent and what character should narrate them. For example, PIN developed 60-90 second long voice messages as the length was found to be short enough to hold the full attention of the user and long enough to provide the important points of information. The messages also communicate the ways people could find out more information if required.

Then PIN set up the system up in conjunction with the government’s health service: should a woman find out she was pregnant, she was encouraged to attend a health facility and there her mobile phone number was registered by one of the midwives. 118 midwives at all health centres and referral hospitals were coached on the use of the mHealth system and on how to register mobile phones during monthly data collection and monitoring visits. The pregnant woman’s (or her partner’s) mobile phone number was then entered in the database and would receive a series of voice messages over coming weeks.

## ACHIEVEMENTS

Uptake of the project has been highly successful. **Since 2013, mHealth has reached approximately 20,000 moth-**

**ers. Over 99% of them enjoy receiving the messages and 97% would be willing to pay for the service.** The uptake of the programme has contributed to improvements in key life-saving behaviours. For example, early initiation of breastfeeding (within 1 hour of birth) increased from 57% to 78% compared to before and after the project. In the areas where PIN implemented the mHealth project, PIN found a 68% reduction in neonatal mortality rates when they compared data collected in 2010 and 2011 (before the project) to data from 2015 and 2016. However, nationally across Cambodia neonatal mortality rates are also declining: from 45 deaths per 1000 live births in 2010 to 27 in 2015. This corresponds to a 40% reduction in neonatal mortality rates. Although still highly significant this is not as large as the reduction seen in PIN’s target areas.



Picture 2: Women are registered to mHealth program during their visit in local health facility

## NEXT STEPS

People in Need is working to further scale up the intervention whilst looking into sustainable financing models. PIN is also keen to apply mHealth to other country programmes. If you want to learn more about mHealth, contact Camila Garbutt at [camila.garbutt@peopleinneed.cz](mailto:camila.garbutt@peopleinneed.cz).

### DONORS AND PARTNERS:



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DEVELOPMENT COOPERATION



**USAID**  
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### KEYWORDS:

mHealth, mobile phones, technology, IVR, Cambodia, maternal health, child health, maternal mortality, neonatal mortality, health education, nutrition, acute malnutrition, behaviour change communication, communication 4 development, C4D

# Drones

## Making up-to date, precise and affordable mapping a reality

Contributed by Piotr Sasin and James Happell

**In Cambodia, PIN has started using drones for the collection of elevation imagery intended for the production of maps. Drones have enabled the fast and affordable procurement of high quality imagery, and thus have increased the cost-effectiveness of mapping exercises and accelerated the Disaster Risk Reduction efforts of PIN in the country.**

PIN has started using unmanned aerial vehicles (UAVs), commonly known as drones, in Cambodia for mapping purposes. PIN uses a fixed wing drone that, operated remotely by a PIN Geographic Information System officer, collects high-resolution aerial images of a given area. Processed images can be used for spatial analysis and the production of maps useful for the community, local administration and other development actors. **Use of drones has significantly reduced the time needed for procurement of up-to-date maps, especially of extensive areas.**

Produced by the Swiss company senseFly<sup>1/</sup>, the drone is equipped with a camera and e-motion software for flight planning and management, data collection, and pre-processing of collected data. Drone collected imagery is compatible with a wide range of industry software, such as pix4D, with which it can be transformed into geo-referenced orthomosaic rasters, digital surface models

and point clouds. In comparison to heavier drones, this 2 kilogram drone poses a smaller safety threat to people and property in case of emergency landing or crashes. Additionally, its battery allows for longer flights.

The use of the drone for mapping purposes was piloted through 2016 internal PINnovations call and its purchase was funded by PIN Club of Friends and EuropeAid.

### CONTEXT

Disaster Risk Reduction (DRR) is an important element of PIN operations in Cambodia where recurring cycles of floods, droughts and intensive storms destroy people's livelihoods and development gains. Since devastating floods in 2011, PIN has been one of the leading international non-governmental organisations in this sector, building temporary evacuation sites and providing drinking water during floods, retrofitting water points to withstand



Picture 1: PIN team preparing its drone for a mapping flight

<sup>1/</sup> senseFly is a producer of professional mapping drones. For more information about senseFly, go to: [www.sensefly.com/home.html](http://www.sensefly.com/home.html)

them, designing disaster resistant houses and rolling out a national Early Warning System (EWS).

Development of Emergency Preparedness and Response Plans (EPRP) is an important element of DRR support that PIN provides to local authorities. Besides demographic, socio-economic and other data, good satellite or aerial imagery is an essential requirement for preparation of EPRPs. By analysing elevation data, it is possible to identify, depending on the disaster scenario, the most-at-risk areas, evacuation options, at-risk populations, property and infrastructure, and to design appropriate preparedness, mitigation and adaptation measures. If the imagery is of high resolution, it is even possible to estimate the vulnerability of physical structures.

However, in Cambodia elevation data is often unavailable or outdated and obtaining up-to-date satellite imagery is very expensive. Moreover, while generally of good quality, satellite imagery tends to be less flexible and offers fewer details than aerial pictures.

**” If used extensively, drones quickly pay back despite significant initial investment.**

## IMPLEMENTATION

PIN Cambodia has been using geographic information systems in its work since 2012. **PIN Cambodia has also been closely following the development of UAV technology, especially in humanitarian relief sector.** senseFly drones were selected because they best corresponded to the country programme's needs and were provided with robust technical support from the senseFly team in Switzerland.

Prior to using mapping drones, PIN introduced the purpose of the drones and the technology behind them to local authorities. The authorities mistrusted flying objects and associated them with spying activities. It was therefore necessary to take time to explain that drones were harmless and were to be employed to support local authorities and communities.

It should be taken into account that there are a few practical limitations to using drones. For one, drones require open areas for taking off and landing which can be sometimes difficult to find in urban settings. For another, drone batteries have low performance. The currently used fixed wing drone can fly with one propeller for 40 minutes and then must return to the take-off location for the battery to be changed so that the drone may continue flying. This can be particularly time-consuming when mapping a large area.

### KEYWORDS:

innovation, automated aerial vehicles, drones, mapping, aerial imagery, elevation data, technology, DRR, resilience, emergency preparedness, Cambodia



Picture 2: PIN's senseFly mapping drone

## ACHIEVEMENT

PIN used UAVs in Cambodia to determine the best sites for the installation of automatic water gauges and for the preparation of elevation maps of surrounding areas. In Cambodia's capital, PIN, in collaboration with local authorities, mapped 35 urban communities using drones. Orthophoto maps of these hazard-prone and impoverished settlements which house thousands of people were used for the preparation of District and Commune Development Plans and the subsequent upgrading of local infrastructure. This ultimately increased access to basic services in the area.

## NEXT STEPS

In 2017, drones will continue to be used for the mapping of areas which are at high risk of floods and of Phnom Penh's poor communities. Drones will be also employed in rural settings, especially in coastal areas, as part of PIN's expansion of the Early Warning System. Despite significant initial investment, drones quickly recoup these costs, if used extensively. Besides additional mapping drones, PIN Cambodia plans to purchase a base station in the near future. Base stations generate ground control points which can be used for the correction of drone-acquired coordinates. If you are interested in more information about use of drones for mapping purposes, contact Piotr Sasin at [piotr.sasin@peopleinneed.cz](mailto:piotr.sasin@peopleinneed.cz) or James Happell at [james.happell@peopleinneed.cz](mailto:james.happell@peopleinneed.cz).

### DONORS AND PARTNERS:



# Automated Water Gauges

## Increasing the responsiveness of the Early Warning System

Contributed by Piotr Sasin

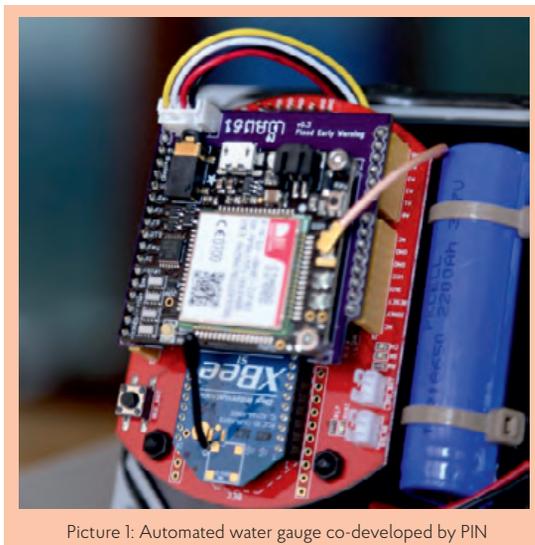
**With the aim of reducing the vulnerability of the Cambodian population to floods, PIN has co-developed and piloted the use of automated water gauges. Automated water gauges have substantially improved the responsiveness of Cambodia's Early Warning System to floods by continuously recording water levels and transmitting the data for immediate evaluation.**

An automated water gauge is a flood detection unit that monitors river water levels. Powered by solar energy, this solar-based device measures precise water levels every 15 minutes and transmits the data across a mobile phone network to a centralised online server where the information is then analysed by PIN. **A live stream of water level data can be watched online.**<sup>1/</sup> If the data collected by the gauges is evaluated and it is deemed that threshold levels have been reached, a pre-recorded audio message is sent to registered users in affected areas using Interactive voice response (IVR) technology. The message, either a warning or an emergency notification, also contains advice on the best course of action appropriate to the location in question. Automated water gauges represent a crucial component of the Early Warning System (EWS) which was introduced to Cambodia by PIN in 2013.<sup>2/</sup>

The water gauge device was developed by PIN in partnership with Development Alternatives Incorporated (DAI)<sup>3/</sup> from the United States and Development Innovations (DI)<sup>4/</sup> from Cambodia, and was introduced as part of PIN DRR programmes in Cambodia in 2016. To the best of our knowledge, PIN-developed flood detectors are the only solar-powered, GSM-enabled and sonar-based water gauges installed in Cambodia or anywhere else.

### CONTEXT

Cambodia is one of the most hazard-prone countries in South-East Asia as it experiences a large variety of incidents, from floods, drought and fires, lightning and storms, to epidemics and pest outbreaks. As a result of climate change, weather patterns are becoming more severe and erratic. Additionally, the frequency and intensity of natural disasters in Cambodia is on the rise. As the majority of local farmers are primarily dependent



Picture 1: Automated water gauge co-developed by PIN

on alluvial or rain-fed agriculture, natural disasters have devastating consequences on the livelihoods and food security of vulnerable populations.

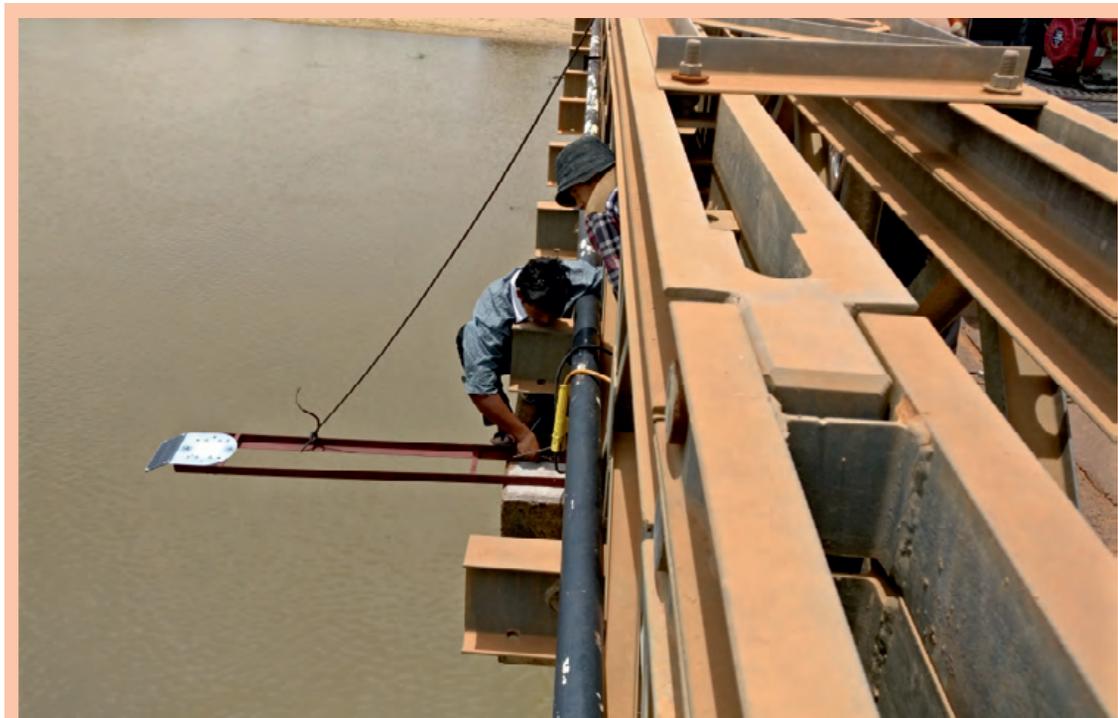
The last emergency-level floods in Cambodia occurred in 2011 and to a lesser extent again in 2013, causing severe damage to livelihoods and to rice crops across flood affected provinces. In order to help local populations prepare in advance for forthcoming natural disasters, following the 2013 floods, PIN designed an Early Warning Message Dissemination System, a mobile phone based voice message service. The system was developed in partnership with the National Committee for Disaster Management (NCDM) and allowed NCDM and its subnational offices to send warnings to citizens about forthcoming natural disasters. People were able to easily register on the system using the nationally assigned free call number 1294.

<sup>1/</sup> You can watch the live stream of data from PIN automated water gauges at: [http://ews1294.info/sensorsLog20?sensor\\_id=01020301](http://ews1294.info/sensorsLog20?sensor_id=01020301)

<sup>2/</sup> For more information about PIN-developed EWS, go to: <http://ews1294.info/home>

<sup>3/</sup> DAI is a private company funded by USAID and DFID to deliver development services. For more information about DAI, see: [www.dai.com](http://www.dai.com)

<sup>4/</sup> DI is a USAID-funded project helping CSOs, technology companies and social enterprises to design and use ICT solutions addressing Cambodia's development challenges. For more information about Development Innovation, see: [www.development-innovations.org](http://www.development-innovations.org)



Picture 2: Installation of a PIN-developed automated gauge to a bridge

However, slow processing of water level data has posed a significant challenge to the effectiveness of EWS since its inception. Detection of dangerous water levels at the site, subsequent approval of procedure at the sub-national level, the recording of a warning message and its dissemination by NCDM to the EWS network was a process soon to be found inadequately slow and heavily dependent on uninterrupted availability of all concerned staff. PIN was therefore on the lookout for means of improving the speed of data processing and the overall efficiency of the EWS service.

Since commercial grade hydrology stations were found unsuitable for use in Cambodia due to their requirements of high initial investment, extensive technical expertise and parts availability for their maintenance, PIN proceeded to develop its own automated water gauge in partnership with DAI and DI.

## IMPLEMENTATION

The idea to develop automated water gauges originally came from director of DAI Maker Lab and was further customised by PIN's Technology for Development Manager. PIN staff attended a Maker Lab in Phnom Penh in early 2016 to investigate the possibility of using IoT tech-

nology<sup>5/</sup> within development programmes, and thereafter they became familiar enough with the putative device to attempt to construct it. Following months of consultations and planning, PIN signed an agreement concerning collaboration with DAI and DI which outlined the design of automated water gauges, their installation and the training of office staff in their use and maintenance.

Afterwards, the PIN DRR manager selected two flood prone sites in the provinces of Kampot and Pursat for the installation and the initial testing of the automated water gauges. The existing relationship with provincial governments from PIN's work on Early Warning System played an important role in the final selection of the piloting sites. PIN sought authorisation from the provincial governments to install the devices and to trial early warning messages on registered people in the affected areas. Using PIN's own drone (see article [Drones – Making up-to date, precise and affordable mapping a reality](#) at page 20) to

**”** PIN developed flood detectors are the only solar-powered, GSM-enabled and sonar-based water gauges installed in Cambodia.

<sup>5/</sup> IoT stands for Internet of Things. IoT technology generally refers to inter-networking physical devices (also known as "connected" or "smart" devices) or other items that enable collection and exchange of data.



Picture 3: Automated water gauges help to reduce people's vulnerability to floods – a frequent occurrence in Cambodia

conduct an aerial elevation assessment and in consultation with international river management specialists, PIN determined 'warning' and 'emergency' water levels for the selected sites and surrounding areas.

In August 2016, a DAI engineer delivered the supplies and the necessary equipment to PIN in Cambodia. The engineer also conducted training sessions on use and device maintenance for local staff. With the assistance of the provincial governments and some local knowledge, the devices were successfully attached to concrete and steel bridges and installed. There has been no hardware related issues due to natural or manmade damage to the devices thus far. However, remote troubleshooting of issues has been difficult to accomplish. Therefore, should you employ similar devices in the future, consider carefully investing into a local code developer.

## ACHIEVEMENTS

During the last two years, PIN's Early Warning System has gathered more than 45,000 registered users and has been used on numerous occasions during severe weather events.<sup>6/</sup>

**Since their installation, flood detection units have been logging important data.** Although water levels at selected sites have not yet reach thresholds which would trigger 'live' emergencies, conducted simulations have shown all components of EWS (detection, logging and mobile voice messaging) to be working properly. There is therefore no reason to think that the system would not do func-

tion in event of a real emergency. The status of automated water gauges has also been monitored by Early Warning System's dashboard should they fail for any reason.

## NEXT STEPS

PIN will continue to monitor installed devices during their trial period, refine their source code and examine any of potential software or hardware related issues. If the trial proves successful, PIN plans to increase geographical coverage of automated water gauges in order to reach more populations who live in flood prone areas and to contribute to the country's overall water level data collection. PIN is currently outlining plans for the installation of a further 25 sensors using funding from the EU and UN ESCAP. **In the next rollout, PIN also plans to use a new model of the sensor which can be updated remotely.** While hardware limitations and battery life currently allow for device configuration only within close proximity, new sensors should enable PIN to control devices spread around the country from its head office. If you want to learn more about automated water gauges, contact Piotr Sasin at [piotr.sasin@peopleinneed.cz](mailto:piotr.sasin@peopleinneed.cz).

### DONORS AND PARTNERS:

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### KEYWORDS:

innovation, automated water gauges, flood detection, detector, sensors, early warning, technology, floods, natural disasters, DRR, resilience, climate change, environment, Cambodia

<sup>6/</sup> To access Early Warning System dashboard, go to: <http://ews1294.info/sensormap>

# Our Contributors



## Barbora Kořínková

Barbora works as a GIS assistant. Based in Prague, she provides GIS support to Water, Sanitation and Hygiene (WASH) and other projects. Barbora joined PIN in 2016. You can reach Barbora at [barbora.sachova@peopleinneed.cz](mailto:barbora.sachova@peopleinneed.cz).



## Camila Garbutt

Camila is the Knowledge & Learning Department's Advisor for Multisectoral Nutrition and Public Health. Before joining PIN in Ethiopia in 2014, Camila worked in Ethiopia, Haiti, South Sudan and Madagascar, primarily on WASH programmes. Camila is based in London and you can contact her at: [camila.garbutt@peopleinneed.cz](mailto:camila.garbutt@peopleinneed.cz).



## James Happell

James works as the Technology for Development Manager in Cambodia. James has more than a decade's experience managing technology projects and infrastructure across platforms in both NGOs and the private sector. He joined PIN in 2015. You can reach James at: [james.happell@peopleinneed.cz](mailto:james.happell@peopleinneed.cz).



## Jan Faltus

Jan is the Knowledge & Learning Department's Advisor on Sustainable Water Services. Jan joined PIN in 2004 and since then has worked in Afghanistan, the Caucasus, Ethiopia, Indonesia, Pakistan and South Sudan. Since March 2017, Jan has been based in Ethiopia. You can reach Jan at: [jan.faltus@clovekvtsni.cz](mailto:jan.faltus@clovekvtsni.cz).



## Petr Schmied

Petr is the Knowledge & Learning's Advisor for Behavioural Change and the manager of IndiKit. Petr has been working with PIN since 2006. Since then he has worked for PIN in Angola, Cambodia, Ethiopia and Sri Lanka. Petr is based in Georgia and you can contact him at: [petr.schmied@peopleinneed.cz](mailto:petr.schmied@peopleinneed.cz).



## Piotr Sasin

Piotr is the Country Director of the PIN country programme in Cambodia. Piotr joined PIN in Cambodia in 2012. Prior to that, he worked in the humanitarian sector in Pakistan, Sudan and Afghanistan. You can contact Piotr at: [piotr.sasin@peopleinneed.cz](mailto:piotr.sasin@peopleinneed.cz).

# About Knowledge & Learning Department

The aim of the Knowledge and Learning Department (KLD) of People in Need (PIN) is to support the continuous professional growth of PIN country programmes. Through their work, KLD advisors contribute to the quality development of PIN programmes, fostering synergies and scaling up best practices. They also participate in global knowledge networks and support advocacy initiatives which aim to create positive changes in the sectors where PIN has expertise.

## SUPPORT PROVIDED

In order to achieve the aims stated above, KLD advisors perform the following activities:

### Programme development

- ◆ Formulate quality standards, policies and tools required for improvement of PIN's work, and pursue their application
- ◆ Develop and review sectoral strategies
- ◆ Review the quality of projects and programmes while identifying gaps and providing guidance for improvement
- ◆ Conduct project baselines, mid-term and final evaluations
- ◆ Support or lead preparation of new proposals, while ensuring evidence-based programming
- ◆ Network and develop international partnerships that can be of benefit to PIN country programmes
- ◆ Develop and foster innovative solutions

### Knowledge management

- ◆ Document, collect and share experiences, lessons learned and best practices
- ◆ Ensure technical quality of baselines, endlines and monitoring plans
- ◆ Evaluate sector-related expertise of new applicant and existing programme teams and provide tailored trainings when required
- ◆ Maintain regular communication with technical staff in PIN country programmes in order to provide them with tailored support throughout programme design and implementation, facilitate their professional growth and improve overall knowledge sharing across country programmes
- ◆ Represent PIN in various professional platforms and support programme-related advocacy activities

## SCOPE OF EXPERTISE

KLD advisors offer PIN country programmes expertise in the following sectors:

 <p>Resilience &amp; Nutrition Security</p>	 <p>Education &amp; Skills Development</p>	 <p>Social Protection &amp; Inclusion</p>	 <p>Sustainable Livelihoods &amp; Environment</p>	 <p>Good Governance</p>
 <p>M&amp;E, Research and Data Analysis</p>	 <p>Behaviour Change &amp; Indikit</p>	 <p>Grants Development</p>		

For a list of KLD advisors and their contacts, see Annex 1.



We hope you enjoyed the first issue of INSPIRED! The aim of INSPIRED is to support creativity and scaling up of successful tools and approaches by sharing your knowledge, experiences, insights and lessons learned across PIN country programmes. We would love for you to help us shape the content of INSPIRED, so that it responds to your needs and interests.

Would you like to learn about a particular topic? Do you want to share your knowledge, insights or lessons learned? Do you have suggestions regarding the content or format of INSPIRED? Share your ideas with the Knowledge & Learning Department at [resource@peopleinneed.cz](mailto:resource@peopleinneed.cz)! We are looking forward to hearing from you!



In the meantime, join Yammer at [www.yammer.com/peopleinneed.cz](http://www.yammer.com/peopleinneed.cz) to share your knowledge, hear from your colleagues and follow the latest news from PIN country programmes and KLD advisors!

INSPIRED is an internal publication of People in Need intended for all staff of the Relief and Development Department. This publication should also be shared with partners and donors.

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**This issue was prepared by:**

Petra Vránová, Editor in Chief

Tereza Vavřínová, Issue Editor

Marek Tarnovský, Graphic Designer

Monika Ticháčková, Editorial Advisor and Language Editing

Yuddi Gershon, Ben Russell and Djihan Skinner, Language Editing

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**People in Need**

**peopleinneed.cz**

Šafaříkova 635/24, 120 00 Prague 2

E-mail: [mail@peopleinneed.cz](mailto:mail@peopleinneed.cz)

Phone: +420 226 200 400

Facebook: [facebook.com/clovekvtisni](https://facebook.com/clovekvtisni)

Twitter: [twitter.com/clovekvtisni](https://twitter.com/clovekvtisni)



**People in Need**

**peopleinneed.cz**

People in Need, a Czech non-governmental organization (NGO) that has been providing aid in troubled regions and supporting respect for human rights since 1992. Since then, People in Need has grown into one of the largest NGOs in Central Europe. Today, its work focuses on relief and development aid, advocacy for human rights and democratic freedom, field social work, and education, awareness and information.



**Alliance 2015**

**alliance2015.org**

Alliance2015 is a strategic partnership of seven European NGOs engaged in humanitarian and development activities. Besides People in Need (Czech Republic), Alliance2015 members are ACTED (France), Cesvi (Italy), Concern Worldwide (Ireland), HELVETAS Swiss Intercooperation (Switzerland), Hivos (The Netherlands) and Welthungerhilfe (Germany).