**Barrier Analysis Report**

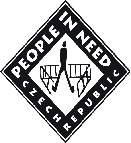
on smallholder farmers disinfecting chicken coops



**Project:** CAM-4-SCALE

**Report Prepared by**: Petr Schmied and Julien Brewster (PIN)

**Date**: 23rd March 2017



CAM-4-SCALE is funded by: CAM-4-SCALE is implemented by:

**1. Project Background**

The Civil Society, Authorities and Markets for Sustainable Community Animal Production, Livelihoods and Environment (CAM-4-SCALE) project is implemented by a Czech INGO People in Need (PIN) in cooperation with its following partners: PNKA, EPDO and CIRD. It aims to *sustainably improve the livelihoods of 11,000 livestock raising households* living in eight provinces of Cambodia by improving access to competent extension services and the use of promoted animal raising practices and inputs, whilst also supporting improved access to finance and market opportunities. The project started in July 2016 and its duration is 24 months. Its total budget of approximately 1.3 million EUR is funded by the European Union and administered by the Ministry of Agriculture, Forestry and Fisheries (MAFF). The project forms part of the civil society grants function of the European Union (EU) financed programme: ‘Promotion of inclusive and sustainable growth in the agriculture sector: fisheries and livestock’, being implemented by MAFF.

**2. Barrier Analysis**

**2.1 Background**

The CAM-4-SCALE project promotes a range of animal raising practices aiming to reduce animal mortality and maximize farmers’ production. One of them is regular disinfection of chicken coops against diseases by using one of the promoted disinfectants (TH4, Bestaquam-S, Formades, Gluta B 1510 and BKA). This practice is used by an estimated less than 3% of all poultry farmers. The vast majority of targeted farmers raise 20-60 chickens and apply very few (if any) biosecurity measures. This contributes to high rates of mortality of approximately 30% for adult chickens and 55% for chicks.

In order to better understand what is preventing farmers from using this practice (and what could motivate them), PIN in cooperation with its partners PNKA and EPDO conducted a Barrier Analysis (BA) study. BA was conducted by PIN, EPDO and PNKA staff from the 13th to the 17th of February 2017. Its results were used to design an effective behaviour change strategy aiming to increase the proportion of poultry farmers disinfecting their chicken coops.

**2.2 Training**

Prior to the implementation of BA, PIN’s advisor for behaviour change (Petr Schmied) trained in total 19 staffs from PIN and its partner organisations on using the Designing for Behaviour Change (DBC) Framework and conducting BA (including coding, data analysis, etc.). The training largely followed the standard DBC/BA curriculum. Its detailed content, schedule and participants are included in the annex.

**2.3 Methodology**

The BA study asks people a series of questions aiming to identify which barriers and motivators have the biggest influence on whether they (do not) practice the desired behaviour. It uses the Doer/Non-Doer methodology that consists of interviewing (at least) 45 people who already do the behavior (Doers) and 45 people who have not adopted the behavior yet (Non-Doers). The differences between their answers are what matters most as they show us which determinants are likely to be most influential.

The survey interviewed 48 Non-Doers and 45 Doers living in the below listed areas. The data was collected by using tablets with questionnaires designed in Excel (tailored to the KoBo software).

|  |  |  |
| --- | --- | --- |
| Province | District | Village |
| Kampong Chhnang | Tuek Phos | Srae Prich |
| Krang Ta Mom |
| Baek Chak |
| Trapeang Chum |
| Chambak Kantreanh |
| Rolea B’ier | Damnak Kei |
| Utumpor |
| Phlov Veay |
| Boeng Veaeng |
| Boribo | Trapeang Pou |

Since only very few farmers practice the studied behaviour, the identification of Doers was quite time consuming. A team of 9 data collectors and two supervisors required three days (from 13th February lunchtime until 16th February late morning) to collect the required data. Village Animal Health Workers provided a very useful help with identifying Doers. Two PIN supervisors used standardized checklists (see annex 3.5) to monitor and support the quality of the interviews conducted by the data collectors.

Among the main methodology-related lessons learnt were:

* Before it is decided which behaviour will be studied it is important to have more reliable information on how many people actually practice the behaviour. If the behaviour is practiced by a very small number of people, it is essential to invest sufficient time in pre-identifying the Doers before the survey teams goes to the field (for example, by asking Village Animal Health Workers or partners’’ field staff to provide lists of Doers’ name, address and phone number). Due to the small number of Doers, on average, one data collector interviewed only three Doers or Non-Doers per day, which is a relatively inefficient use of time (considering that one interview lasts for less than 30 minutes).
* The survey also recorded a number of lessons related to conducting BA by using tablets. They were used to inform PIN’s Behaviour Change Toolkit (to be published in May 2016), especially its Annex 8: Using Tablets to Collect Barrier Analysis Data.
* The supervisors should clearly understand that their role is not to interview people but to help the data collectors to keep improving the quality of the interviews they conduct. This should be done by a continuous use of the checklists that should stop only once the supervisor was not able to identify any shortcomings in the data collectors’ skills (which very rarely happens). Since some supervisors might be reluctant to provide critical feedback, more training and coaching needs to be provided to increase their ability to do this well.
* At the same time, the checklists should include what type of feedback the supervisor provided and whether the data collector during her/his next interview addressed the identified weaknesses.
* Some data collectors were rather slow with entering answers to open ended questions to tablets, which might have limited the amount of information that was recorded. The two suggested “solutions” were:
* Conducting “speed typing tests” prior to the survey and letting slower users to practice typing on tablets may help with addressing this weakness.
* In the case of open-ended questions where it is possible to predict (after piloting) at least a part of the different answers the respondents might provide, it is possible to partially pre-define these answers as it reduced the need to type. At the same time, the data collectors must be very well trained to avoid them selecting a pre-defined answer instead of making the effort to type what the respondent actually said.

**2.4 Results**

The detailed list of BA’s results is included in the BA Tabulation Sheet included in the annex. The most **significant differences** between Doers and Non-Doers (≥15 percentage points and p-value <0.05) were related to:

* Self-Efficacy:
* Compared to Non-Doers, Doers were 12.5 times more likely to say that they are able to disinfect their chicken coops by using one of the promoted disinfectants (33 percentage points difference).
* Compared to Non-Doers, Doers were 5.6 times more likely to say that the possibility to apply the disinfectant by spray makes its use easier (40 percentage points difference). They were also 12.5 times more likely to say that its longer-term, non-problematic storage makes its use easier (22 percentage points difference).
* Compared to Non-Doers, Doers were 7.9 times more likely to say that there is nothing that makes using disinfectants difficult (48 percentage points difference).
* Compared to Doers, Non-Doers were 4.6 times more likely to say that lacking knowledge and skills on (correctly) using disinfectant makes their use difficult (18 percentage points difference).
* Access: Compared to Doers, Non-Doers we 3.7 times more likely to say that finding shops that sells the promoted types of disinfectants is difficult (18 percentage points difference). The cost of using the disinfectant was not identified as a significant barrier.
* Cues for Action: Compared to Doers, Non-Doers were 8.6 times more likely to say that it would be very difficult to remember to use the disinfectant (25 percentage points difference). Similar difference was identified regarding their ability to remember how to (correctly) use the disinfectant.
* Culture: Compared to Non-Doers, Doers were more likely to say that most people in their wider community approve of them disinfecting their chicken coops by using one of the promoted disinfectants (23 percentage points difference).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **DBC Framework – The Proposed Behaviour Change Strategy** | | |  |  |
| **Behaviour** | **Priority and Influencing Groups** | **Determinants** | **Bridges to Activities** | **Activities** |
| **Targeted poultry farmers disinfect their chicken coops by using (one of the) promoted disinfectants.**  *(addresses chicken mortality)* | **Priority Group:**   * male and female smallholder farmers aged 18-65 years * 74% are literate * raise chicken (primarily for sale of live chickens used for meat) * between 70-80% of farmers keep chickens in the open (i.e. making the use of disinfectants not effective) * want to reduce animal mortality, raise more chickens and increase their income * Approx. 70% are ID Poor 1 or ID Poor 2 households * Own and/or manage between 0.1 to 0.5 ha of land on average.   **Influencing Group**:   * no significant influencing groups are opposing this behaviour | 1. Self-Efficacy:  * Farmers (Non-Doers) are not sure whether they will be able to (correctly) use the disinfectant. * Possibility to use the disinfectant by spraying + its easy storage makes its use easier.  1. Culture:  * Farmers (Non-Doers) are not sure whether most people approve of them using the disinfectant.  1. Access:  * Farmers (Non-Doers) do not know where to purchase disinfectants.  1. Cues for Action:  * Farmers (Non-Doers) are not sure whether they will remember to + how to disinfect their chicken coops. | 1. Increase farmers’ ability to (correctly) disinfect their chicken coops by using (one of) the promoted products.  2. Reinforce the perception that disinfectants can be easily stored and used easily by spraying.  3. Increase farmers’ perception that people in their community approve of them using the disinfectant.  4. Increase farmers’ access to disinfectants.  5. Increase farmers’ ability to remember to + how to disinfect their chicken coops by using (one of) the promoted products. | * (Self-Efficacy) Facilitate Village Animal Health Workers (VAHWs) to provide more trainings and coaching to farmer groups on the correct use of disinfectants, and ensure these trainings are delivered at demonstration farms in a hands-on practical way (with clear information on proper safety precautions) * (Self-Efficacy) Develop and disseminate visual Information, Education and Communication (IEC) materials (e.g. leaflets, posters) - or integrate more messaging on disinfectants into existing materials - to farmers and VAHWs with very simple instructions on how the disinfectants should be utilised (which also include information on safety precautions) * (Self-Efficacy & Culture) Ensure trainings and IEC materials emphasize how easy disinfectants are to use and to store, and ensure that users of the disinfectants (e.g. VAHWs and model farmers as key influencers) are involved in sharing their positive experience with the use of these products * (Self-Efficacy) During trainings (and in IEC materials), promote the use of basic equipment (small PVC pump dispensers, which cost around $3-4 to make with locally available resources) which make it easier (and safer) to spray coops with the disinfectant. * (Culture and Cues for Action) Support farmers to cooperate in groups at the village level (to share their livestock raising experience, participate in joint marketing initiatives etc), as a way to strengthen peer pressure and reminders on disinfectant use. * (Access) Support input suppliers (veterinary shops & VAHWs) to integrate the sale of disinfectants into their supply chains, by: working with farmer groups to advise them to notify local vet shops of their interest to purchase these products; strengthening vet shops’ links with national companies that supply these products; and coordinating with relevant government departments (OAHP) to encourage shops to start selling these products * (Cues for Action and Self-Efficacy) Encourage VAHWs and vet shops to always remind their clients to use disinfectants when they meet or provide other services to them, and encourage VAHWs to start promoting the spraying of coops as one of their paid services to farmers (to help demonstrate how easy the practice is) |
| **Outcome Indicators**:   * % of targeted farmers who in the past 30 days disinfected their chicken coop by using one of the promoted disinfectants | | | **Process Indicators:**   * # of trainings and coaching sessions provided which promoted and demonstrated the use of disinfectants * # of farmers reached with training/coaching on the proper use of disinfectants (disaggregated by gender) * # and type of IEC materials disseminated to farmers * # of farmers which start to utilise the promoted technical spraying equipment promoted by the project * # of vet shops in the target area which started to sell promoted disinfectants (or scaled up their range of disinfectants) based on the projects initiatives * % of vet shops in the target are which are selling the promoted disinfectants * # of VAHWs that have started to sell the spraying of coops as a service to farmers | |

**2.5 Discussion and Recommendations**

In order to ensure sustainable improvements and increases in poultry production, it is important that farmers adopt a holistic approach that addresses all four pillars upon which animal productivity is built, namely breeding, feeding, health and management. Biosecurity is a critical aspect of health and management in poultry farming, and disinfection is a key component of routine biosecurity, which helps to reduce the spread of diseases by killing (or slowing) disease organisms including viruses, bacteria, parasites and mold. It is important to note that in order to be most effective, the use of disinfectants needs to be complemented with other important raising and flock management practices, such as the proper use of coops and pens that keep chickens enclosed at all times, and the regular cleaning of pens. Prior to promoting the use of disinfectants extensively, it is important to ensure that farmers first keep their chickens in coops.

Based on the findings of the barrier analysis that was conducted, it is suggested that PIN and its partners focus on the following interventions to increase the number of farmers using disinfectants:

* Continue to support capacity building of Village Animal Health Workers (VAHWs) to enhance their privatized service delivery (focussing both on their technical skills and their business development and presentation skills), as they are a critical actor in providing needed veterinary inputs and services and promoting best practices (such as the use of disinfectants) to livestock farmers.
* Facilitate VAHWs to provide trainings and coaching to farmer groups on technical topics including the correct use of disinfectants (ideally through a user-pays system), and ensure these trainings are delivered at demonstration farms in a hands-on practical way. The trainings should be complemented by the dissemination of visual IEC materials (e.g leaflets, posters) which include simple instructions for how and why disinfectants should be used, along with instructions on how to assemble basic equipment that can be used to make this practice easier (e.g. pump dispensers that can be made out of PVC piping). Trainings should also always include sessions on the health risks posed by these products along with instructions on their safe use and handling[[1]](#footnote-1).
* Support livestock farmers to cooperate in groups (to share their technical expertise, cooperate on sourcing inputs and developing joint marketing channels etc) when receiving training on the use of disinfectants, which can help to strengthen the peer-pressure and reminder elements for the use of these inputs.
* Focus the key extension messages for smallholder farmers and their family members (through trainings, coaching, IEC materials) on how easy it is use and store the disinfectants. This can be done most effectively by engaging existing disinfectant users to share their experience with this practice during trainings.
* Encourage VAHWs to always remind their clients to disinfect their chicken coops when they meet or provide other services to them (utilizing participatory monitoring systems, where VAHWs are trained and supported to collect basic data from local livestock farmers on a monthly basis, using simple technical checklists, can be an effective way to increase this engagement).
* Support VAHWs to promote as part of their services the spraying of coops with disinfectants (this could take place on a monthly basis using a fee-for-service approach, and could be embedded with other services the VAHW provides to farmers such as vaccination). Along with generating more income for VAHWs, this can help to demonstrate to the farmers how easy it is to do this practice, and with time can help convince farmers to start doing this practice on their own.
* During trainings to farmer groups, advise farmers to inform their local vet shops of their interest to buy these products. For local shops to expand their product range, they need to be sure that there will be a sufficient number of farmers interested in purchasing any new products that they start to sell. As the project works with several farmer groups per village (which make up approx. 50 farmers per village), strengthening the demand for these products amongst these farmers can help to develop a sizeable potential market for local vet shops. Gaining the support of the provincial Offices of Animal Health and Production, who have regulatory power over vet shops, and have a mandate to reduce disease outbreaks, can also be an effective way to further encourage shops to integrate these products into their supply chains.
* After working on building demand and awareness at the village level, the project should facilitate Business Forums at the provincial level where national companies that sell these disinfectants can promote their range of disinfectant products (along with promoting other veterinary products that they supply) and how to use them safely to local veterinary shops and wholesalers at the provincial level, to help strengthen these linkages in the supply chain. As a way to incentivise vet shops and lessen their risk of integrating these products into their supply chains, the project could offer a 20% matching fund to subsidise the cost of the first batch of disinfectants ordered by the local shops.
* As a way to better understand the barriers that prevent farmers from adopting other improved raising practices (e.g. use of coops and chick cages, keeping of chickens inside their coops etc), the project should conduct additional formative research, and disseminate the evidence-based findings widely to relevant stakeholders (policy makers, (e.g. GDAHP & MAFF), donors, practitioners). There is also an important need for a simple guideline to be developed (a visual poster format may be most effective) in Khmer which details the specific uses, benefits and risks of each of the disinfectants available on the market in Cambodia, to be disseminated widely to livestock farmers. As the key regulatory actor responsible for the livestock sector, the GDAHP would be best placed to develop this resource.

**3. Annexes**

**3.1 BA questionnaire**

The data was collected by using tablets. The Word based questionnaire is attached below.



**3.2 Completed BA Tabulation Sheet**

The completed BA tabulation sheet is attached below.



**3.3 BA Training and Survey Schedule**

The BA training and survey schedule is attached below.



**3.4. BA Training - List of Participants**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Position** | **Fully Trained?** | **Collected Data?** | **Email** |
| Keoleakhena Kea | Senior M&E Officer (PIN) | yes | supervisor | [keoleakhena.kea@peopleinneed.cz](mailto:keoleakhena.kea@peopleinneed.cz) |
| Phoan Sin | M&E Officer (PIN) | yes | supervisor | [phoan.sin@peopleinneed.cz](mailto:phoan.sin@peopleinneed.cz) |
| Bunnara Chourn | Livestock PC (PIN) | yes | yes | [chourn.bunnara@peopleinneed.cz](mailto:chourn.bunnara@peopleinneed.cz) |
| Saran Vann | Livestock PO (PIN) | yes | yes | [saran.vann@peopleinneed.cz](mailto:saran.vann@peopleinneed.cz) |
| Ratana Kep | Energy PC (PIN) | yes | no | [ratana.kep@peopleinneed.cz](mailto:ratana.kep@peopleinneed.cz) |
| Sideth Dith | Senior Vet (PIN) | yes | yes | [sideth.dith@peopleinneed.cz](mailto:sideth.dith@peopleinneed.cz) |
| Penhpheak Bun | MDC (PIN) | yes | no | [penhpheak.bun@peopleinneed.cz](mailto:penhpheak.bun@peopleinneed.cz) |
| Sophat Tel | Livestock PC (PNKA) | yes | yes | [sophattel@gmail.com](mailto:sophattel@gmail.com) |
| Set Seang | Livestock PC (EPDO) | yes | No | [seangset@epdocambodia.org](mailto:seangset@epdocambodia.org) |
| Sreang Khut | Health Deputy PM (PIN) | yes | No | [sreang.khut@peopleinneed.cz](mailto:sreang.khut@peopleinneed.cz) |
| Songhout Eng | Health PC (PIN) | yes | Yes | [songhout.eng@peopleinneed.cz](mailto:songhout.eng@peopleinneed.cz) |
| Sokhon Sim | Health PO (PIN) | yes | Yes | [sokhon.sim@peopleinneed.cz](mailto:sokhon.sim@peopleinneed.cz) |
| Keo Vicheka | PC (Rainwater Cambodia) | yes | No | [keo\_vicheka@yahoo.com](mailto:keo_vicheka@yahoo.com) |
| Ms. Soy Pheary | FO (Rainwater Cambodia) | yes | No | soyphearyrua@yahoo.com |
| Saing Kim Leng | HRBSPII PA (PIN) | yes | Yes | [kimleng.saing@peopleinneed.cz](mailto:kimleng.saing@peopleinneed.cz) |
| Uy Navy | HRBSPII PM (UPWD) | yes | No | [navy@upwd.org](mailto:navy@upwd.org) |
| Kung Kith | Field Officer (EPDO) | no | Yes | [kith.kung@gmail.com](mailto:kith.kung@gmail.com) |
| Rith Sokunthea | Field Officer (PNKA) | no | Yes | [kunthea.rith@yahoo.com](mailto:kunthea.rith@yahoo.com), |
| Sophea Sim | Health PM (MTI) | yes | No | [ssim@medicalteams.org](mailto:ssim@medicalteams.org) |

**3.5 BA Checklist for Supervising Data Collectors**

The following checklist was used for supervising and supporting the quality of data collectors’ interviews:



1. Any initiatives that promote the use of disinfectants should ensure close attention is paid to the health risks posed by these chemicals, and that farmers are informed of these risks and of measures for safe handling and storage of these chemicals. The key precautions should include: ensuring farmers properly read and understand labels of different products, are aware of the appropriate protective equipment they should use when using the products, safely store these products out of reach of children, and are aware of what to do in event that someone absorbs some of the chemicals. Companies that supply these products should be consulted with to identify the disinfectants that have the least potential health risks that are still effective in eliminating diseases. [↑](#footnote-ref-1)