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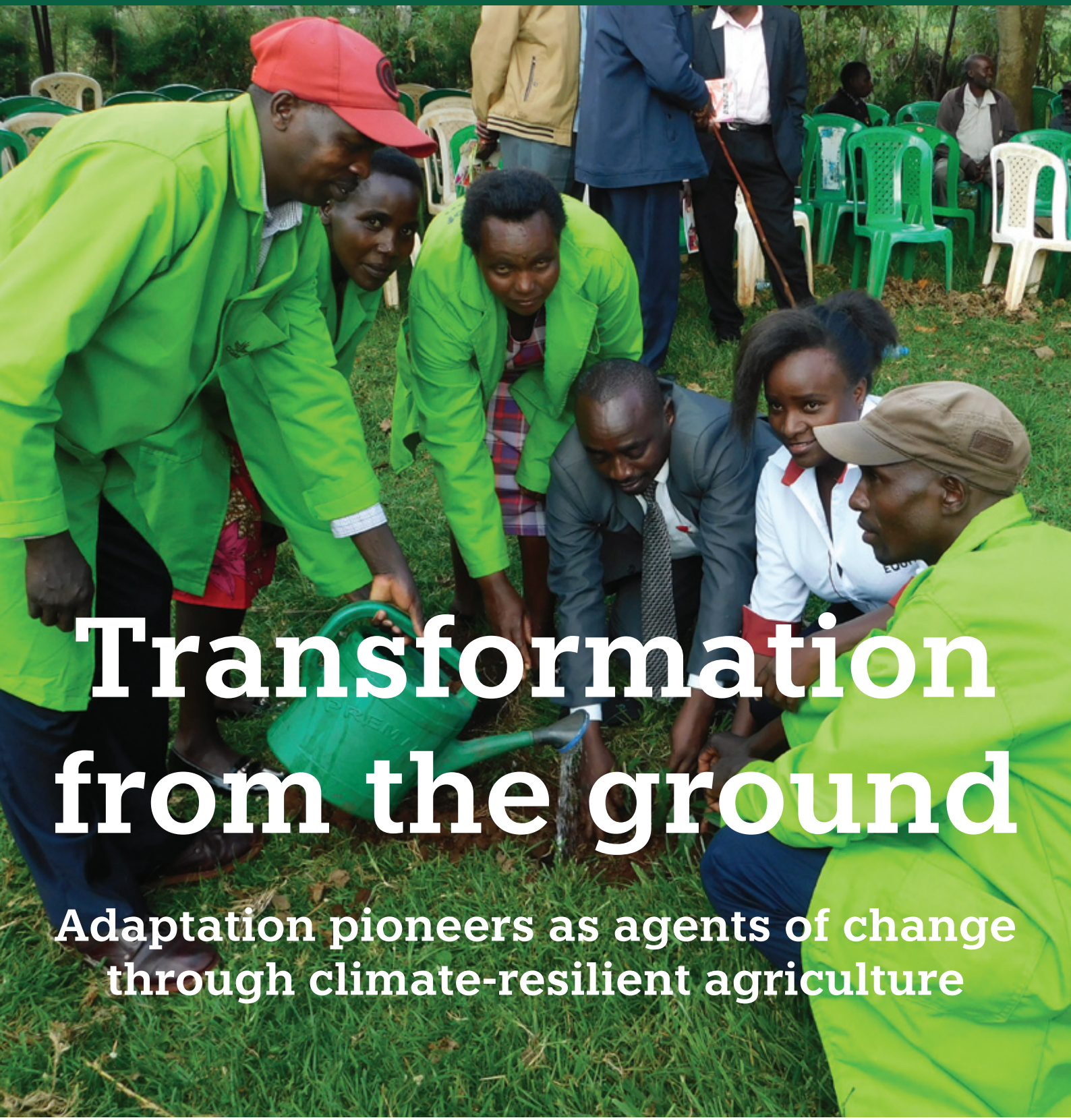

Transformation from the ground

Adaptation pioneers as agents of change through climate-resilient agriculture

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The **International Livestock Research Institute (ILRI)** works for better lives through livestock in developing countries. ILRI is co-hosted by Kenya and Ethiopia, has 14 offices across Asia and Africa. ILRI is a **CGIAR research centre**, a global research partnership for a food-secure future. CGIAR science is dedicated to reducing poverty, enhancing food and nutrition security, and improving natural resources and ecosystem services. Its research is carried out by 15 CGIAR centres in close collaboration with hundreds of partners, including national and regional research institutes, civil society organizations, academia, development organizations and the private sector.

Pioneer Positive Deviance (P-PD) is an approach developed by a team at ILRI to address issues of adaptation to climate change. It focuses on identifying and learning from individuals within a community who find unique, successful solutions to common challenges despite having no additional resources or advantages. By studying these "positive deviants", communities can discover locally effective practices that can be adopted and scaled, making solutions more sustainable and tailored to specific needs. Positive deviance has been used in areas like public health, education, and social change to solve complex problems from within the community.

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Chapter 1

Shifting the focus to solutions

Effective adaptation solutions

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Adaptation to climate change is neither optional nor hypothetical. It is no longer something that we plan for in the future. The time is here and now. Smallholder farmers and herders the world over know this through their own lived experiences. Acknowledging this fact through transdisciplinary collaboration with a focus on farmer-led innovation (F-LI) for adaptation is a rising priority in the domain of climate change adaptation. However, it is often unclear how exactly to implement this in practice. While much adaptation work starts with analyzing problems and building out from that anchor, there is much to be gained in starting with climate solutions that are already effectively embedded within livelihoods and communities.

Watering of goats at Phoebe's farm, Kiruhura district/Uganda. Pamela Wairagala/ILRI

Adaptation for climate-resilient agriculture needs an approach that builds on and engages with people's agency in both generating and scaling their own climate change adaptation solutions. This approach must be built into a robust, coherent, and consistent framework that speaks to the needs of farmers – and lets farmers speak for themselves. It engages farmers and herders in a way that acknowledges their practical knowledge to be of equal value with other, more institutionalized, forms of knowledge such as science.

The Pioneer-Positive Deviance (P-PD) approach focuses on exactly that: the way some people come up with their own effective climate adaptation solutions where others in the same circumstances struggle to adapt to the impacts of climate change. The P-PD approach identifies and works with F-LI for adaptation. It demonstrates endogenous innovations scalable through Farmer to Farmer (F2F) networks, integrating farmer-facing actors such as advisory services and local agri-businesses. The way research is done needs to be adapted to support and capitalize upon such place-based solutions. Scaling F-LI for adaptation through farmer-focused extension pathways on a household level has far-reaching potential in terms of outreach and impact. The applications reach from promotion of F-LI on feed and forage management, animal health, biodiversity on farm, livestock breeding, and others – it can be embedded in landscape level research as well as community-oriented approaches, to benefits from the use of frameworks such as Community-Based Adaptation (CBA), Locally-Led Adaptation (LLA), and aligns closely with the work of PROLINNOVA (Promoting Local Innovation in ecological agriculture and Natural Resource Management). These are approaches following related principles: P-PD is not only about F-LI and co-production — addressing many of the basic principles of these approaches — but focuses primarily on the respect for different ways of knowing and equal collaboration among partners.

Edwin Mitey, pioneer farmer, feeding his livestock, Bomet/Kenya. David Ngome/ILRI

Chapter 2

What is Pioneer Positive Deviance?

Pioneer-Positive Deviance (P-PD) has been trialed as an approach to F-LI for adaptation at multiple sites to support smallholder farmers' self-sustaining capacities in vulnerable environments. P-PD was developed by a team at the International Livestock Research Institute (ILRI) in the Programme for Climate-Smart Livestock (PCSL) and the Livestock and Climate Initiative (LC) from 2019 to 2024.

Jackson and Elizabeth showing conserved maize stalks for the dry season, Kajiado/Kenya. David Ngome/ILRI

The principle of P-PD starts with the premise that in every community there are people who succeed where others in similar circumstances are struggling, and they are known as "pioneers".

Using P-PD as a guiding principle enables an in depth understanding of farmers' decisions on adoption, continuation, or re-configuration of adaptation practices in response to perceived effects of climate change. Originating in health and nutrition research, the approach focuses on resilience understood as "thriving" in a hostile environment (Zeitlin 1991). Rather than identifying failure and analyzing problems, positive deviance leads us to understand why "some people exhibit good outcomes 'against the odds'" (Lapping et al. 2016, 129). The concept helps to identify adaptation pioneer households (APHs) who stand out from the others because they have successfully implemented adaptation practices in response to perceived effects of climate change under the same stress factors as others, who had either not implemented adaptation practices or who had done so unsuccessfully.

Pioneers in adaptation to climate change, or "adaptation pioneers" are positive deviant farmers who deviate from typical behavior of an average farmer for adaptation practices. Rather than seeing them as individual farmers, who are often perceived to be men, focus is on households. Adaptation pioneer households (APHs) are positive deviant households who are better in adapting to climate change than others in the same circumstances.

APHs can be, but do not have to be, model or lead farmers' households who are often characterized by their ability to mobilize social capital: they are well connected and may even have political roles in their communities. In terms of innovations on farm, not all of them are pursuing endogenous innovation, as APHs do. Rather, model and lead farmers are usually

fast adopters regarding technologies promoted and supported by governments, research, and non-governmental organizations (NGOs). Risk management is facilitated by projects supporting the adoption of such introduced technologies. Model and lead farmers play important roles in many rural extension systems, however they are not at the core of the P-PD approach, even though some APHs can be model and lead farmers at the same time as they are pioneers.

APHs are those who actively, and on their own initiative, came up with improvements for adaptation practices. They are different from others — thinking out of the box — and taking risks others are not willing to take. They experiment with various technologies supporting adaptation practices on their farms with the aim of improving productivity and profitability to create more sustainable livelihoods in the context of climate change. In addition, many of them are exceptionally eager to learn, observe, and participate in exchange visits, trainings, and the like.

"The self-sufficient pioneer may adopt only if the practice is believed to be novel and connected with potential broader livelihood improvements, despite the perceived risks." (Zabala, Pascual, and García-Barrios 2017, 240-241)

A pioneer story from the highlands: Kidane and Welete, Amasha, Tarmaber Kebele/ Amhara Region, Ethiopia

Kidane and Welete have two bulls, two cows, one ox, and three sheep. They focus on dairy cow and sheep production, including selling fresh milk, cheese, and butter. They sell trees and engage in sheep and ox fattening.

Kidane and Welete live in a high-altitude area, located at 3,500 meters above sea level. Crop production and livestock keeping are fraught with challenges. The climate is harsh and increasingly variable, with intense rainy seasons followed by months of extremely chilly weather with fog, hail, and frost. Following land reforms in 1998, Kidane lost a large chunk of his farmland. The land he was left with became overgrazed and unproductive, requiring high fertilizer input. At that time, he migrated to Arsi Province, where he learned a range of adaptation and effective land use practices.

A pioneer household story from Ethiopia

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Kidane and Welete feeding their animals a homemade feed supplement, Amhara Region/Ethiopia. Apollo Habtamu/ILRI

Chapter 2

Learning from pioneers' practices

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Having returned to Amhara, the couple are now putting these learnings into practice.

Kidane and Welete are focusing on sheep fattening using a zero-grazing system and sheltering the animals in a barn to protect them from intense conditions. "Our fattening animals shouldn't stay in the sun for a long time," said Kidane. "So, if the sun is hot, I make the shelter cold, and if the shelter is cold, I make it hot: in general, I try to make the barn an environment which is suitable for fattening."

Fields close to farm of Tenagne, pioneer farmer in Gudoberet, Amhara Region/Ethiopia. Birgit Habermann/ILRI

For sheep fattening, Kidane buys sheep from the market that have poor body condition and he gives them the health treatments they need. Welete gives the sheep a type of feed she has developed, using crop residues that are ground and mixed with frushka (wheat bran) and fino (ground wheat), then soaked in water or fed as a cake. She also makes feed out of roasted barley, bean, and vetch, which she sometimes cooks and mixes with salt. These feed combinations speed up the fattening process and have a beneficial impact on the meat.

"As I get older, I want to do more sheep fattening and dairy cow production and change some of my cultivated land to forage development," said Kidane. "I am harvesting crops for home consumption only, because in our village no-one has had any success with producing and selling surplus crops."

From: Adapting to a new normal: Stories of livestock keepers navigating climate challenges. https://hdl.handle.net/10568/134622

We are looking into cases of endogenous innovation in the context of climate change where specific livelihoods or personal situations, life choices, or curiosity have motivated and enabled farmers to become APHs.

Adaptation practices in livestock management are responses to climate change that develop over time. These practices are part of a wider process of transformation of livestock farming. For each adaptation practice, APHs have adapted different technologies to become feasible and profitable within their own household-based context and capabilities. These technologies may exist in different

Adaptation Practice	On-farm Technologies
Climate-smart sheep fattening in the Ethiopian Highlands	Forage diversification Home-made feed supplements Management (feeding patterns, zero-grazing/semi-zero grazing, manure management, health management…) Breed selection for fattening / breeding for fattening
Climate-smart dairy farming in the Kenyan Highlands	Forage diversification and propagation Home-made feed supplements Feed conservation Feed formulation

forms and variations, promoted by projects and extension officers, in different places. However, the farmer-led innovations for these technologies developed by APHs make them attainable for other farmers and herders in similar and comparable situations.

Indicators used to identify adaptation pioneers and gender relations:

- In the P-PD approach, adaptation practices were the main entry points for identifying "adaptation pioneers".
- We then worked with the adaptation pioneer households (APHs) to ensure farmer-led scaling of adaptation practices can happen in gender responsive and socially inclusive ways.
- It is important to note here that the process of finding adaptation pioneers did not include identifying positive deviance in terms of equitable gender relations and decision-making within farming households.

Members of farming households, specifically women, provide substantial labor for the adaptation practices, yet may not have equal access to critical resources and capacity building opportunities. Further, gender norms and practices limit women's ability to participate in decisions around uptake of technologies.

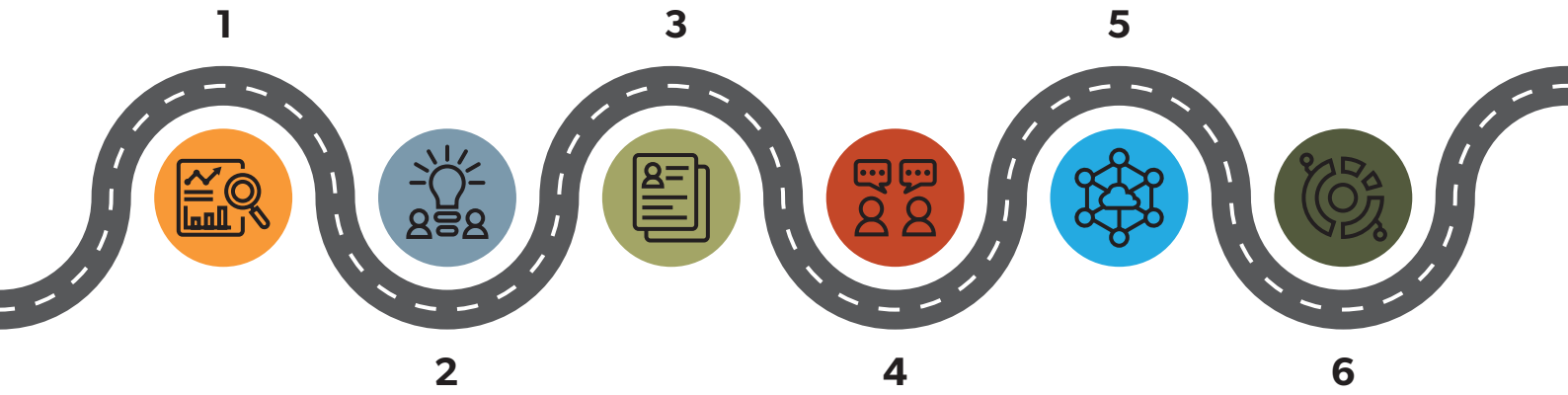
Scaling with households supports socially inclusive and farmer-led innovations. A household approach considers impacts of technologies as well as contributions of household members in scaling of such technologies. It supports socially inclusive adaptation by amplifying the potential for different household members including women and younger adults to learn and lead practices and scale solutions within their diverse groups and networks.

Chapter 3

P-PD Step by Step: a co-design approach for farmer-led innovation

Pioneer-Positive Deviance

F2F Scaling with Adaptation Pioneer Households (APHs)
for Climate-Resilient Futures



1 Find Positive Deviance in Adaptation Practices

Agree on adaptation practices, define positive deviance indicators for the adaptation practices.

2 Find Positive Deviants

Find positive deviant households (APHs) based on indicators for positive deviance, validate during farm visit.

3 Citizen Science

For a better understanding of the practice, farmer-led data collection and analysis of records and samples through researchers. Training for APHs to fill possible gaps and F2F training skills.

4 F2F Learning and Knowledge Sharing

F2F Field Days organized by APHs for peer farmers. Dissemination of co-designed learning materials.

5 Knowledge network and Living lab

Creating linkages with government extension, financial institutions, NGOs, researchers,... .

Support the linkages in a Living Lab for People approach for locally-led innovation.

Create local learning resource centers and innovation hubs among APHs, other farmers and their networks.

6 Scaling in and scaling out

Scaling of APHs' practices to other farmers.

For scaling of the P-PD approach to other actors/places.

Adaptation pioneer Richard Koskei sampling Boma Rhodes grass, Bomet/Kenya. Emmaculate Kiptoo/ILRI

Step 1

Find Positive Deviance in Adaptation Practices

To undertake this, the sites for investigation need to already be clear, as well as the objective of finding positive deviance. The value of knowing about positive deviance is the understanding of the practice and its utility to others, and a scaling strategy so that other people can benefit.

Group drawing a resource map in Tarmaber, Amhara Region/ Ethiopia. Birgit Habermann/ILRI

Therefore, the first step is about supporting the participating community in defining the problem, perceived causes, challenges, and constraints, as much as about identifying common practices, and desired outcomes of finding those.

This step requires a good understanding of the site(s) and the specific conditions influencing management practices and decision-making, as well as on-going project activities and government priorities sustained by extension activities:

- Which resources were needed to implement the adaptation practices? Where did the resources come from?
- How has the practice emerged? Was it an outside organization, did it come from the inside, a government initiative, an endogenous development, etc.?
- To what extent is the practice described traditional, endogenous, modern, imported, or a blend?
- Who were the main actors driving the innovation (adaptation practice)?
- What made them successful (as individuals or groups)?

Who is involved?

- Project partners
- Farmers
- Local government
- NGOs and other organizations in the same area working on livestock
- Cooperatives, and local groups and organizations
- Market-based organizations
- Local research organizations

How?

This process benefits from site knowledge and a good network with stakeholders as outlined

above. However, it is important that the process of agreement on the adaptation practices is not done centrally, but in a co-design process with repeated consultations of all stakeholders affected by the practices. E.g., In the dairy sector, if the practice is feed management, then that would mean to involve also companies providing feed supplements, amongst others, not only farmers and extension officers. This linkage to markets and providers is essential to avoid gaps later.

A decision on the adaptation practice will be made through a series of consultations in a co-design process with repeated feedback to the stakeholders involved.

Reflection and lessons learned

Focus is important to avoid getting side-tracked, but also to avoid gaps. If there is no clarity regarding why we look at positive deviance, and why we are looking for pioneers and APHs, then there is a risk that important challenges and opportunities are overlooked.

Co-design is important but can come at a great cost, and if not done genuinely, it can damage relationships and undermine trust. Co-design is not just a buzzword, it is a participatory process supported by specific methodologies and guiding principles. This is often overlooked, and there is no difference to business-as-usual other than the term.

How to find positive deviance in gender relations within households

- Understand norms and practices shaping intra-household dynamics for a reference group in a particular context. It is important to ask:
  - What is typical behavior? What do people in the group usually do?
  - What is appropriate behavior? What do others expect them to do?
  - What will happen if some people do not conform to normative expectations?

Group discussion in Kiruhura District/Uganda. Birgit Habermann/ILRI

- Examine how gender norms and practices both shape and are shaped by adaptation practices.
- Consider contextual factors like the type of system (intensive and semi-intensive), type of livestock and gendered ownership (dairy cows, dairy goats, and poultry), access to resources (information, finances, and land), and other relevant factors.
- Find practices and attitudes that support more equitable intra-household relations and dynamics.

Focus on relevance of practices

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Step 2

Find Positive Deviants

In this step we aim to determine the presence of positive deviance in households or groups. This is a decision to be made based on step 1. A mix of both is not recommended, because the indicators would have to be different.

Determining positive deviance is an essential step in the process: here it is decided what exactly is the practice, and the technologies associated with it, that might get scaled out later. It is very important to thoroughly review the indicators selected for this purpose. In our pilot projects, we agreed on some basic indicators, that had to be applied independent of the practices and technologies.

Determining positive deviance is essential

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For example, for the qualitative survey at the site in Kenya these were:

- Awareness of climate change
- Adaptation practice implemented in positive deviant way (further refined specific for practice)
- Livestock practice implemented e.g., are they dairy farmers?
- Fodder bought additionally
- Type of feed and forage used
- Pioneering character
  - Endogenous innovation rather than adoption
  - Unique ways of knowing and learning
  - Tries out new things and abandons failures
- Willingness to engage in knowledge sharing with others

For the quantitative study at the same sites these were:

- Performance in milk production:
  - Milk yield, expressed in liter/day per cow
  - Calving interval, expressed in month
  - Age at first calving, expressed in month
- Livelihood, adaptation, and technology:
  - Farm diversity, number of different crops, forage, and livestock on farm
  - Diversity of sources of income
  - Number of (sub-)technologies applied
  - Technology advice, cube root of the number of households helped
  - Months with food shortages

The result of this activity is a validated list of positive deviant households, or APHs, according to the identified indicators.

Julius pouring water in a water trough at Kashokye's farm, Kiruhura district/Uganda. Pamela Wairagala/ILRI

Who is involved?

- Project partners
- Farmers

How?

There are two ways of understanding positive deviance in adaptation practices — qualitative and quantitative:

1) **Qualitative:** This requires stakeholder engagement in key informant interviews and participatory workshops.

a. Specify the adaptation practices and indicators for positive deviance.
b. Clarify who are potentially positive deviant APHs regarding these practices
c. Verify the listed APHs against the list of indicators for positive deviance (interviews and farm visits)

2) **Quantitative:** This requires the availability of a larger household survey, like a RHoMIS (https://www.rhomis.org/) survey. The sample size depends on the area, but also on the scaling requirements. The final list of positive deviance in any given sample ranges between 3% to 15%, but it can be more or less depending on the indicators selected and the method applied for selection of the final sample. The process is as follows:

a. Carry out a household survey to better understand the adaptation practice (or use a suitable existing data set)
b. The data will help you to better understand which indicators are useful to define positive deviance. If you have used a RHoMIS survey, the following tool based on an R-package can be used to analyze for positive deviance based on pareto-optimality: https:/startistic.shinyapps.io/farmhousehold_posdev/
c. Using the indicators, this tool will help you to come up with a list of APHs.
d. Verify the listed APHs against the list of indicators for positive deviance (interviews and farm visits)

Livestock of Nteme, pioneer farmer, Kajiado/Kenya. David Ngome/ILRI

Reflection and lessons learned

Both approaches have their own merits, and the decision which one is more appropriate needs to be made based on the purpose of looking for positive deviance, the scope of the activity, the site conditions, and the interest of stakeholders.

Step 2

Qualitative: We learned from the feedback to the qualitative study that there needs to be a good balance in the numbers of APHs. If there are few APHs selected, and activities benefitting a larger group are picking up slowly, then it creates a difficult situation for the APHs. They can feel singled out to allegedly benefit from a project, while others don't, even though they don't get support in terms of finance or goods. We have learned that if we start with a group of six APHs, then there needs to be a clear pathway forward to show how the community can benefit from them. Alternatively, one works with a different method and identifies a larger number of APHs, which we tried with the quantitative approach.

Let us look at equitable intra-household dynamics

Quantitative: In this case we identified a larger number of APHs, however there was a high elimination rate during validation. The household survey does not always capture the real situation of farmers, as they sometimes answer in ways that don't fully reflect their actual situation. In the other hand, having a quantitative data base, even if not 100% accurate, gives a good indication of where a broader set of farmers find themselves in, almost a baseline, and it is a good prerequisite for a MELIA study later.

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Especially in the beginning it is important to manage expectations. This was easier in the qualitative study that was based on more personal interactions with an initial sample size of maximum 40 farmers per site. In the quantitative sites, we had 300 to 500 farmers per site. Close collaboration with local authorities is essential, such as clan leaders, chiefs, community managers, extension officers, and the like. As another means of avoiding unrealistic expectations, we committed to providing feedback reports on the household surveys. These reports show an overview of the main statistics and results in clear language, and they were distributed to survey respondents.

How to identify positive deviant households with equitable intra-household dynamics

Let us look at equitable intra-household dynamics as an example for a positive deviant household in terms of gender relations. That means that different members of the household are making decisions together. However, this household might not be willing to openly share with the community how they make decisions as a household. Some household members might think what they do in their household is not what happens in other households and is not what is expected from those who are household heads. This makes it challenging to find such positive deviant households. This will also make it challenging to scale the equitable practices found in some households.

It is therefore important to consider what is socially acceptable behavior for women and men within a reference group in a particular context.

Things to consider:

***Identify:** What are some entry points or practices that are socially acceptable and can foster greater equity in households?*

***Include:** Indicators on gender equity in household decision-making in the list of indicators for finding positive deviants.*

***Interview:** Multiple household members, not only the heads of households.*

Wyclife putting chopped forage into a feed trough at Pheobe's farm, Kiruhura district/Uganda. Pamela Wairagala/ILRI

Step 3

Citizen Science

This step is important to get a better understanding of the practice, and to support APHs in areas they identify. As we now know who the APHs are and what practices and technologies they have specialized in, we can study those in more detail. This helps to understand gaps and opportunities. This can be done in different ways. One way would be to do regular farm visits and record relevant data on the practices and technologies together with the farmers. Alternatively, APHs can be equipped with the tools and skills to practice record-keeping themselves. The collected data in either case can then be analyzed, and APHs can learn valuable lessons from the results. The results will be provided to APHs in a format that is useful for them according to their own description, and only shared with others in anonymized formats.

Citizen science supporting feedback to APHs

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Examples for the kind of information that can be registered are socio-economic data such as labor, income/expenditures, and impact of the technologies on different household members. The technical data are intended to be analyzed by extension officers, or bio-physical scientists for a better understanding of the climate-smartness of the technologies. They provide a feedback mechanism to farmers on the performance of their practices in terms of productivity and profitability. How long this record keeping is done depends on the technologies embedded in the practices.

Who is involved?

- Project partners
- Farmers
- Local government
- NGOs and other organizations in the same area working on livestock
- Cooperatives, and local groups and organizations
- Market-based organizations
- Local research organizations

Adaptation pioneer Said Bahine weighing his goat, Afar Region/Ethiopia. Fuad Mohammednur Amin/ILRI

How?

Farmer-led data collection

1. Training on how to collect data with selected tools:
   a. Either digital with (smart) phone or on paper, assisted or independently
   b. If applicable, train in taking measurements from livestock for heart girth, age determination, etc.
   c. If applicable, sample collection e.g., feed, and feed supplements.
2. Data are collected in records at certain intervals, monthly or quarterly, depending on the topic.
3. Analysis of records and samples through researchers
4. Feedback on the results

On demand training

1. Topics suggested by APHs
2. Topics, venue, and timing suitable for all household members
3. Training method suitable for all household members
4. Documentation prepared and given to APHs

Co-design of training materials

1. Data of farmer-led data collection analyzed, shared, and discussed with other partners, not just APHs (but anonymized for sharing)
2. Collaborative design workshop on contents for training materials based on APH practices and technologies
3. Draft materials prepared, shared again with partners and APHs for feedback and final approval
4. Feedback workshop on final outputs, development of dissemination, and training strategies
5. Dissemination and training on contents of the manuals

Reflection and lessons learned

- Many people will be interested in the results from the on-farm data collection. It is important to remember that they can only be shared in anonymized formats.
- People will ask for the contacts of the APHs, but they must not be shared without prior permission.
- This step can be quite resource intensive. Plan carefully which data are to be prioritized, and at which interval the data and/or samples need to be collected.
- Analysis of feeds or soil samples are expensive, but they yield very important information. Sharing these results back with the APHs is mandatory.
- Include more stakeholders at this point, not only the APHs, to ensure that the lessons and the value of this work does not go unnoticed.
- Not every APH will maintain the expected quality. Check the data continuously and provide advice, if wanted, on how to avoid mistakes.

Adaptation pioneers Richard and Edna Tabut recording animal heart girth, Nandi/Kenya. Emmaculate Kiptoo/ILRI

- There can be drop-outs because for some APHs this is too much work. The sooner they realize how valuable this can be for them, the higher the motivation will be.
- Regarding the training materials, this can be a time- and resource consuming process, but it is also very valuable. It is important to develop them with a feasible dissemination strategy in mind.

Step 4

F2F Knowledge Sharing

After about three to six months of citizen science data collection, the first Farmer to Farmer Field Days (F2F FDs) are held either by individual APHs, or in clusters of APHs in different agro-ecological zones. APHs progressively include more farmers, farmer groups, and cooperatives in knowledge exchange through F2F FDs and partner workshops.

It is crucial that at this point, APHs are aware of the innovative character of their practices. It helps if they have received feedback on their practices through the analysis of citizen science data. This gives them the confidence to share their knowledge about these practices with a wider community.

In our pilots, we had planned two F2F FDs for each APH during the data collection period. The first one took place at about six months into data collection. The second one was towards the end. While at the first field day, the APH members mostly talked about what they were doing at the time, the second field day allowed them to reflect on their achievements (but also the lessons learned when looking at the data that we had collected during the year) and to provide answers to open questions. If applicable, an external expert was invited to answer questions.

Co-designed training materials such as practice summaries on the technologies based on the APHs' experiences can be disseminated at the F2F FDs, in local languages and aligned with extension and research, to avoid confrontation and a rift between different actors in the area.

Who is involved?

- Farmers
- Project partners
- Depending on the APHs' preferences:
  - Local government
  - NGOs and other organizations in the same area working on livestock
  - Cooperatives, and local groups and organizations
  - Market-based organizations
  - Local research organizations

How?

APHs invite people who expressed interest in learning about their adaptation practices. These events are primarily for farmers, but extension agents and other local key stakeholders will be informed and if the APH wishes they will be included in the field day. It is up to the APH to design the programme, fix the date and venue, and whom to invite. While it is important to formulate criteria, the ownership of the process must remain with the APHs.

Criteria for inviting participants to F2F FDs:

- Known interest in the presented adaptation practices
- Potential to pass knowledge on to others (F2F training)
- Basic preconditions in place (land and livestock, labor, and minimum economic assets)
- Minimum pioneering spirit and known to be willing to try out new things, resiliency and innovativeness, and innovators rather than obedient adopters
- Not immediate family members of the APH
- Ideally, they had already tried to implement the adaptation practice but had not been so successful and are now willing to improve its implementation in another attempt

Initially, F2F FDs were held for less than 20 participants, but as APHs grew more confident, they started to invite more people, and more partner organizations to these events. The preparation for the field day is very important. The APHs selected topics they were interested in demonstrating and it had to be clear in advance what and how they were going to demonstrate.

In terms of documentation, there can be situation dependent variations. In some cases, photovoice or even participatory video may be suitable, but in other cases they could be disruptive. Doing some informal videos and photographic documentation can be helpful, especially if the APHs want to scale some of their work beyond their immediate peer group.

To assess how the F2F FDs went, we did group interviews with the participants (groups of five only), and a semi-structured interview with the hosts. After some time had passed, participants were contacted to find out if they had been able to make use of what they had learned on the field day.

Reflection and lessons learned

- People will ask for the contacts of the APHs and the field day attendants, but they must not be shared without prior permission.
- It was an unusual situation for many APH members to be the expert and the one doing the talking, without external experts interfering. Thus, initially, they needed a lot of encouragement and support, in some places more than in others. Later, with some experience some APH members got very professional in organizing such F2F FDs.
- In the first pilots, we realized that it was very challenging to involve different household members, especially men and women, on an equal level. Women were invited, but in some cases disappeared into the kitchen, were discouraged to voice their opinion, or culturally not able to participate in the given setting. This requires better preparation and a good understanding of gender relations to see what is possible and what is not, without interfering in people's personal relationships.
- Field days can require significant logistical arrangements and are not possible at all farms.
- It is important to be strategic and intentional about engagement of multiple household members, including being deliberate about budgeting. APHs can get overambitious and overburden the field day visitors with information. In the beginning, some advice based on experiences may be helpful.
- Involving cooperatives extension officers, researchers, and other partners with a participatory mindset can be incredibly helpful.
- APH members quickly grow their confidence through field days, and it can also change their role in their communities to a real change agent.
- Sharing resources at field days is very helpful such as seeds or cuttings for propagation.
- Demonstrations of practices in real life such as silage making, planting forage crops, weight measurements, etc. are very important and much appreciated. The more people can see, and try out themselves, the happier they are.

The preparation for the field day is very important

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Step 5

Knowledge Network and Living Lab for People

Through the iterative engagement inherent in the P-PD approach, knowledge networks emerge that reach beyond F2F engagement. These networks benefit from the feedback loops of the on-farm data collection, as the APHs share their insights, and in return provide support for APHs. P-PD facilitates a learning process, which includes expert backstopping and support, to further improve farmers' adaptation practices.

The knowledge networks include other farmers applying the same practice (but not always the same technologies), and experts from the extension system, NARS, NGOs, agricultural training centers, private sector etc.

Who is involved

- Project partners
- Farmers
- Local government
- NGOs and other organizations in the same area working on livestock
- Cooperatives, and local groups and organizations
- Market-based organizations
- Local research organizations

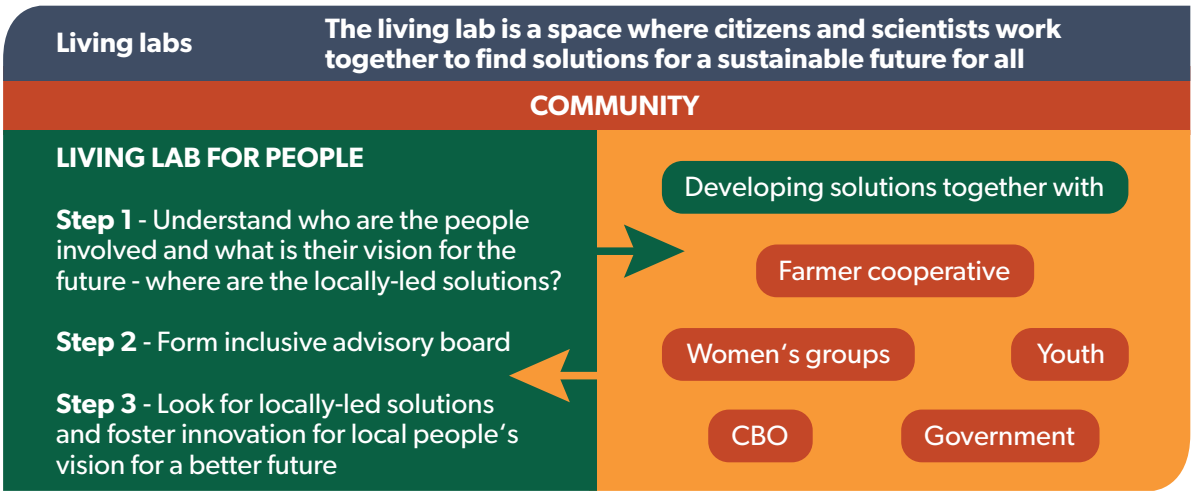
How?

All members of the knowledge networks themselves become multipliers in the scaling process. As members of different groups and cooperatives, they spread what they learn about the specific technologies embedded in the practice. APHs willing to be F2F trainers receive a Training-of-Trainers training. The extension experts receive training to better understand the F2F approach, about the practices and relevant technologies by other experts, as well as training to become coaches and mentors for the knowledge networks.

Feedback workshop: The purpose is to present findings of the on-farm data collection to a local audience. The idea is to show what has been done so far by the APHs, and what preliminary results and plans they have. How much APHs want to share at such workshops depends on them.

Learning resource centers: This was an idea by APHs, who suggested that such a resource center can serve as an information hub and "library" for farmers to get the latest information. This can be a space for exhibitions of extension posters, a place to look at videos, and exchange practice materials. E.g., if one producer brings back information from an event or an exchange visit, this can then be brought there for others to see as well. However, it can also be a place for the exchange of seeds, cuttings, and other materials.

Living Lab for People (LL4P): LL4Ps can be a useful mechanism to support knowledge networks and farmer-led innovation. It is an inclusive platform for citizens, government, civil society, companies, and research organizations for rapid prototyping or validation. One desirable feature is that the LL4P is physically embedded in an existing organizational structure with an interest in adopting the LL4P as their own in-house innovation cluster or "participatory incubator". This can provide great linkages with APHs knowledge networks and support them both in



trialing out some innovations as well as in scaling out innovations to others through the LL4P.

A Living Lab for People (LL4P) at the Kaimosi Agricultural Training Centre

The Kaimosi LL4P supports innovation cases that contribute to food systems transformation in Nandi County, Kenya. In the first stage, Kaimosi Agricultural Training Centre (ATC) through the advisory board will call for, screen and select innovation cases for trials at Kaimosi ATC. At the trial stage, innovation cases will be refined with the help of experts. In the second stage, selected and tried innovation cases will receive start-up funding and technical support through the LL4P host.

Why Kaimosi ATC?

The institution is the ideal host for the LL4P in Nandi County. It is well-placed to ensure sustainability and to bring different stakeholders together. Kaimosi ATC has an ideal climate that can support enterprises from the various agroecological zones in Nandi County. It was further selected because of its ability to support the trialing of low-emission innovation cases.

LL4P aims to facilitate solutions by bringing stakeholders together and leveraging the resources and expertise available at Kaimosi ATC.

Reflection and lessons learned

- Knowledge networks emerge but they cannot be forced. There must be a mutual interest. As soon as this is launched by a project/ a donor, expectations in terms of providing incentives can be created. That defeats the purpose of the networks, that only make sense if they are self-supporting and sustainable.
- Feedback workshops are essential as collecting data is one thing but giving results back another. This is often neglected and forgotten at the end of projects, but it really damages relationships and undermines trust.
- If the knowledge network needs a formal structure or best remains informal depends on the context. Imposing a formal structure is never a good idea. However, without being a legal entity, funding proposals are not an option.

The Kaimosi LL4P supports innovation cases

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Step 6

Scaling in and scaling out

Reaching out to a larger community of practice

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This step has two components: one refers to the scaling of the adaptation practices, and the other to scaling of P-PD. Our focus in this guideline is on the scaling of the actual adaptation practices. This can happen through a continuation of F2F FDs, either organized by APHs or with partners. In some cases, partner organizations are inviting APHs to contribute to Farmer Field Schools (FFS), or to training events of dairy cooperatives and the like. This enables them to reach out to much larger groups of peer farmers and herders.

Sharing booklet on farmer-led innovation with partners in Nandi County Government, Kenya. Birgit Habermann/ILRI

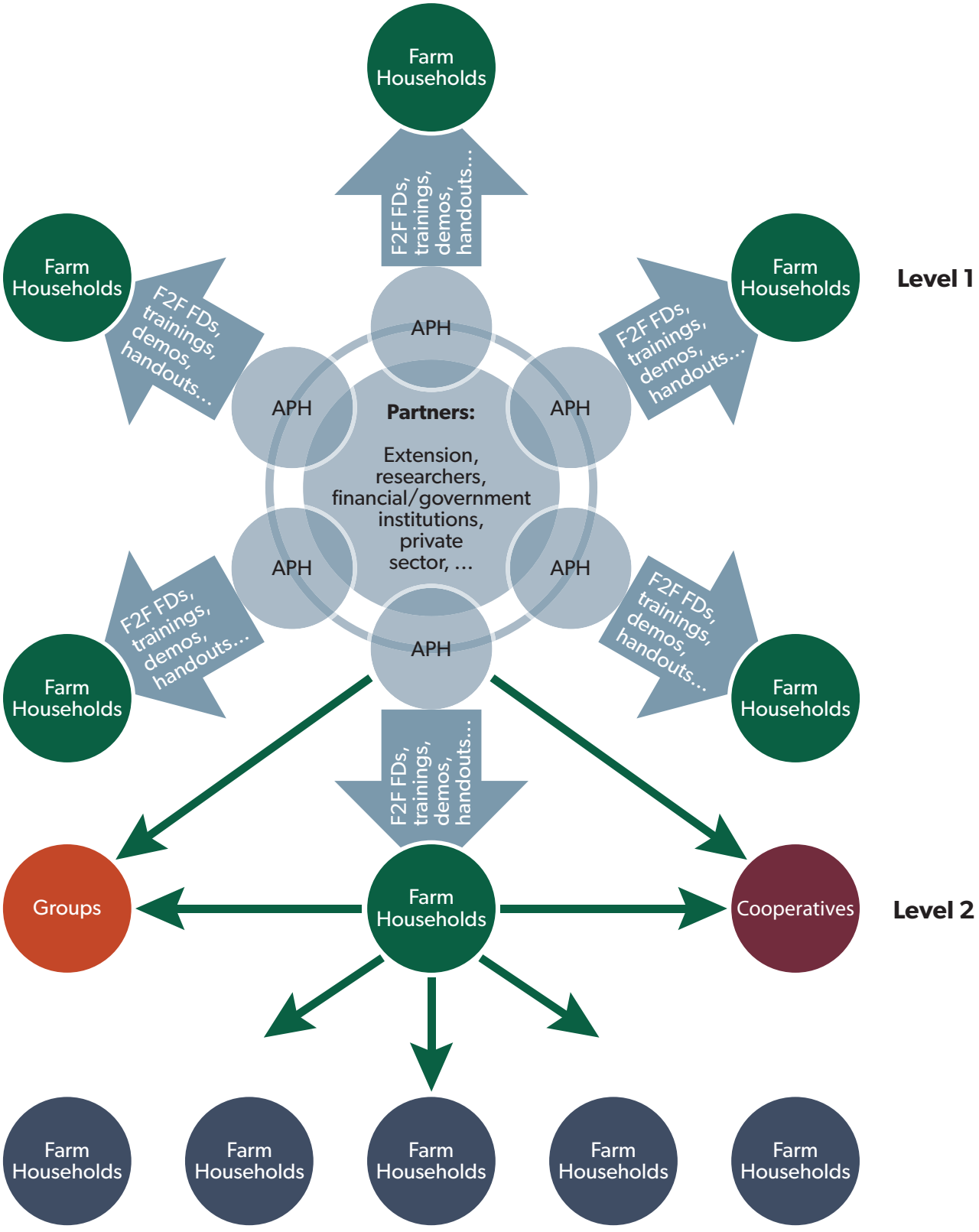
Adaptation pioneer Phoebe shows her watering trough, Kiruhura district/Uganda. Pamela Wairagala/ILRI

Supporting materials can be developed in a co-design process between APHs and the knowledge networks, resulting in products endorsed by a broad group of stakeholders, including researchers. In the case of the LC initiative, we developed booklets and posters with and for farmers and extension officers in Kenya and in Ethiopia based on farmer-led innovations on feed conservation and feed management practices.

Looking beyond the scaling objectives of the adaptation practices, we develop P-PD guidelines for agricultural extension training institutes and development NGOs, and other research for development organizations, for every site we work in.

Higher learning institutes are important partners in developing teaching modules in extension curricula. Through the development of P-PD guidelines on a national level, we aim to scale P-PD to agricultural development actors and organizations both in public and private domains.

F2F Scaling and Knowledge Networks



Step 6

Who is involved

- Project partners
- Farmers
- Local government
- NGOs and other organizations in the same area working on livestock
- Cooperatives, and local groups and organizations
- Market-based organizations
- Local research organizations

Knowledge network partners at a F2F Field Day in Bomet/ Kenya. Birgit Habermann/ILRI

How?

Scaling is achievable through a snowball system and F2F extension. Each APH becomes a multiplier, as well as the people trained by the APHs. They are playing this role in direct interaction with other farmers, but also through the groups such as cooperatives where they are active members. The first level target is what they achieve in the first round, when they start establishing the knowledge network. The second level target only becomes achievable when the first level network has been solidly established and starts growing into other groups. Through this system of F2F engagement, the APHs develop their engagement in F2F extension. This enables them to train a much larger group, however these are not yet the implementing households for their innovative technologies. More training is offered by the partners in the knowledge network, but also through extension and the research system (NARS). For this kind of outreach, we will use not only printed materials, but also radio programs and extension videos in local languages.

Reflection and lessons learned

- Realistic targets: Pressure by peers and donors often leads to unrealistic promises, creating problems in implementation. It is preferable to work with achievable scaling targets at the outset and avoid over-promising.
- Clearly defined targets: The words used in the outcome statements matter latter on. Therefore, promising the adoption of climate-smart practices is a risky promise to make. Stating access to information and knowledge about such practices is a more honest statement.
- The outreach through this system can be effective, but there needs to be some follow up and control of the messaging.

Felix Sum, pioneer farmer, giving water to his livestock, Nandi/Kenya. David Ngome/ILRI

Chapter 4

Ground Rules & Principles of Engagement

Gender and social inclusion

The principles outlined below identify key leverage points to guide local applications for positive social outcomes. These principles are flexible and can be adapted in contextually relevant ways.

1. Identify power dynamics and challenges

- Map power relations between multiple stakeholders, including members of the same households.
- Integrate indicators on gender equity in household decision-making to understand gender relations within APHs.
- Identify distribution of benefits and burdens in relation to adaptation within the households.
- Understand household members' differential access to resources like information and finances, and ownership of land and livestock.

2. Avoid unintentional harm

- Understand if the approach is unintentionally reinforcing inequitable distribution of burdens and benefits within households.
- Identify who needs to be included and what needs to be prioritized to avoid doing more harm than good.

3. Build 'horizontal' partnerships

- Collaborate with partners with equal say and decision-making power in the process.
- Foster spaces of interaction and knowledge exchange.
- Example: F2F FDs, and planning of F2F FDs.

4. Uplift voices of those who have not been previously included

4a. Facilitate inclusive participation

- Consult multiple household members, including women and younger household members.
- Encourage them to invite from their networks in F2F FDs and share knowledge.
- Support demonstrations of innovative practices in F2F FDs by different household members. This involves understanding that dairy is not an isolated system, but a part of integrated livelihood practices.
- Foster opportunities for women and youth in APHs to interact with farmers, extension and other partners.

4b. Encourage diverse voices and leadership

- Support women from APHs to lead demonstrations during F2F FDs.
- Organize field day participants into sex disaggregated groups. This can then encourage women to speak up and ask questions about practices like fodder establishment, feed management, and animal health.

5. Create synergies, support and sustain linkages

- Membership in women-led groups can be potentially transformative for women in dairy households. As part of groups, women can build their capacities to learn and lead, collectively own assets as groups, and exercise enhanced agency in decision making.
- Facilitate linkages between local women-led groups, extension, and other partners, including the pioneers.
- Find synergies between the P-PD approach with F2F FDs and other farmer-led practices and scaling approaches (e.g., group-based approaches).

6. Engage men in the process

- Conduct sensitization dialogues with men in the community (e.g., with husbands of the women group members).
- Seek support from local community leaders.

7. Assess impact, reflect, and refine

- Implement monitoring and evaluation at multiple stages across the life cycle of the project to allow for continuous learning and reflection.
- Integrate a flexible adaptive approach, with non-linear impact pathways and feedback loops.

Source: adapted from McGuire et al. (2024)

Case example: Partnership with GROOTS Kenya

In dairy households of Western Kenya, men typically own dairy cows while women provide substantial labor in everyday activities, such as milking, feeding, and cleaning sheds in semi-intensive and intensive production systems. Despite their contributions, women's potential to earn or decide how to use income from milk sales is limited. Opportunities to learn are similarly gendered, as extension and other service providers typically interact with men. Unequal access to information limits women's participation in adaptation decisions and reinforces inequitable benefits and burden distribution within dairy households.

Socially inclusive approaches are essential to ensure that farmer-led adaptation and scaling is inclusive and supports social equity in dairy households. Our team partnered with GROOTS Kenya to address this need using a "champions for transformation" approach — an ongoing effort to adapt GROOTS Kenya's champion model to support women's peer learning in groups and strengthen their leadership capacities.

GROOTS Kenya is a national movement of over 5,000 women- and girl-led self-help groups and community-based organizations. GROOTS Kenya scales and sustains a grassroots movement for women and girls, by using a champion model, a community-led approach to development. Champions, women or men, are agents of change who understand their community needs and try to foster solutions, in part by promoting women's agency in their communities (Bullock and DuttaGupta 2023).

Working with champions, GROOTS Kenya created ten women led savings groups in two sub counties, Bomet East and Chepalungu of Bomet County, Kenya. These groups participated in a farmer-led field day hosted by adaptation pioneer households in Sotik, Bomet. The field day addressed learning needs of the women-led groups by showcasing local innovative practices. Pioneer household members led demonstrations on feed and fodder practices, food diversification, manure management, poultry, and animal health. Specifically, women from pioneer households led kitchen garden and poultry management practices.

Linkages created between the women-led groups and pioneer households and partners during the field day will support and sustain farmer-led scaling through knowledge networks. An upcoming sensitization forum is planned with men in the community, specifically husbands of the women group members, to discuss the importance of building women's learning and leading capacities, and their decision-making agency in dairy households.

Working with champions, GROOTS Kenya

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Chapter 4

Consent

- We are critical of how we obtain and apply informed consent. We doubt that people always understand what they sign, even if given an explanation (e.g., how many people do really understand what third party access on the internet means?).
- We ensure that a proper information is given, even if there are time constraints.
- We agree that we see and interpret consent based on what we know that people can understand in their specific situation.

Photographs

- We apply different protection for photographs featuring recognizable people as opposed to landscapes and livestock e.g., while livestock and landscapes can be published on Flickr we do not permit that for the people we work with.
- Reference for photos: We agree to use given names (provided consent is given for that in the photographic consent section or form). We ask people if this is okay, and what they prefer as an alternative e.g., no name, or putting an alias.

Content sharing: Events, blogs, reports and updates

- We adapt to the media the specific target groups are using.
- We agree to be careful when sharing contact details especially for farmers.
- We need an agreement on data protection for all team members - how can we ensure people are deleting data when the assignment is completed?

Pioneer households and extension demonstrate feed formulation for poultry, Bomet/Kenya. Tanaya Dutta Gupta/ILRI

- Farmers should be partners: respect their time and appreciate their contribution. Let them decide time and place for meetings, and never pressurize if they cancel or pull out.
- Commit to being on time and respect the time of farmers.
- When collaborating with different and external partners, try to remain in control regarding who is coming to visit and how often.
- Observe cultural sensitivities: Manage questions of outside visitors to avoid sensitive topics.
- Prevent external actors to do research "on" the pioneers without their explicit consent.
- P-PD needs systematic interaction with extension. Commit to offering training opportunities and knowledge products.
- APHs and other farmers should have the opportunity to be well informed about the value of this engagement for themselves and other farmers.
- Sanitation/hygiene for animal/human health: sanitize, protection for footwear to avoid disease transmission from farm to farm.
- Farmers should get continuous feedback and data access, and feedback workshops where they can discuss with other stakeholders.

F2F Field Day at the farm of pioneers Pius Leley and Elzeba Lelei. Fenja Tramsen/ILRI

Transformation from the ground: Adaptation pioneers as agents of change through climate-resilient agriculture

Contributors: Birgit Habermann, Leah Gichuki, Tigist Worku, Emmaculate Kiptoo, Todd Crane, Tanaya Dutta Gupta, Renee Bullock, Nathan Maiyo, Elizabeth Getahun, Esther Omayio, Roland Mugumya, Tugume Geoffrey, Shenkute Goshme, Jackline Chebet, Denis Ngeno, Elvis Kipkemei, Rahab Chepngeno, Diana Rotich, Fuad Mohammed Nur, Reagan Siamito

Adaptation Pioneers:

Ethiopia: Tenagne Getaneh, Weldemariam T/mariam & Yewdiyanesh Kabtimer, Admassu Desta & Almaz Tadess, Kidane Ayele & Welete Kidane

Kenya: Joel and Eunice Rotich, Gloria and Daniel Mutai, Richard and Nancy Koskei, Edward and Joyce Chebet Ngetich, David and Margaret Chelogoi, Martin and Mary Keter, Robert Rotich, Nancy Cheruiyot, Jallody and Joseah Rotich, Samuel and Catherine Rotich, Ernest Kosgey, Frankline and Nicholas Kiprotich Langat, Rahab Chepngeno, Priscah Metet, Jonathan and Mary Marutegek, Gideon Cheruiyot Kirui, Micah and Caren Rutto, Joshua and Lucina Serem, Victor Kiptoo Serem, Edwin and Doreen Mitey, Robert and Martha Bii, Tomas and Emily Yebei, David Chumba, Jennifer Karoney Chumba, Monica Yebei, Micah Bett, James and Irine Yego, Joseph and Benson Ambe, Joseph Kitur, Eunice Maiyo Kitur, Jackson Kebenei, Amos Kipchumba, Annaline Limo, Hillary Limo, Musa Barno, Esther Mutai, Mark and Celestine Busienei, Frumenzi Birgen, Daniel Tarus, Josphine Limo, James Kirwa, Collins Kiptoo, Eliab Terer, Allan Rono, Willy K. Biwott, Sharon Biwott, Stanley Ng'ombe, David and Jackline Chepsiror, Regina Sang, Richard K. and Ednah Tabut, Peter Kurgat, Vincent Sang, Shadrack and Priscah Rono, Jeckly Kogo, Cynthia Kogo, Simon Kipkemei Chepsiror, Rael Chepsiror, Peter and Ebby Sang'unya, Lucy Sang'unya, Pius Leley and Elzeba Lelei, Cornelius Kosgei and Monicah Jerotich Kosgei, Felix and Lonah Sum, Nkuuyie Ntetiyian, Nosim Nkuuyie, Nairaba Kitesho, Sereti Nairaba, Kamanga Tolu, Nteme Lanamayiana, Jackson Kureko, Elizabeth Manchare, Nkoitiko Kahal, Nkuyia Sopiano, Sempeta Tajeu, Joel Muinya, Abigael Muinya

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Summary

This book provides guidance on how to use approaches that look for solutions on the ground, rather than imposing them, and work with farmers in building on those in a genuine co-design process with equal collaboration of all partners (where farmers are of course partners, not "beneficiaries"). This approach is based on positive deviance and identifies adaptation pioneer households. Through working with adaptation pioneer households (APHs), we support farmers to improve adaptation, and thus contribute to mitigation through co-benefits of adaptation and mitigation.

Acronyms

APHs	Adaptation Pioneer Households
FFS	Farmer Field School
F-LI	Farmer-led innovation
F2F	Farmer to Farmer
F2F FDs	Farmer to Farmer Field Days
F2F SN	Farmer to Farmer Scaling Networks
LC	Livestock and Climate Initiative
MELIA	Monitoring, Impact, and Learning Impact Assessment
NARS	National Agricultural Research System
PCSL	Programme for Climate-Smart Livestock
PD	Positive Deviance/Deviants
P-PD	Pioneer-Positive Deviance

Glossary

Adaptation Practices: implemented practices in response to the impact of climate change
Adaptation Technologies: specific technologies that belong to a specific adaptation practice
Endogenous innovations: place-based innovations emerging from APHs
Farmer-led innovation: innovation as defined by farmers themselves
Farmer to Farmer Scaling Networks: refers only to networks between farmers
Farmers: refers to smallholder farmers as well as forest dwellers, pastoralists, and fisherfolk
Knowledge Networks: refers to the networks between APHs and other actors, farming, and non-farming

Cover: Cornelius and Monica Kosgei, Pius Leley and Elzeba Lelei, Jonathan Kimolo and Zipporah Ndunge planting a tree after a F2F Field Day. Fenja Tramsen/ILRI