

FEED THE FUTURE INNOVATION LAB FOR LIVESTOCK SYSTEMS

AFU Human and Institutional Capacity Development Gap Analysis

Summary Report and Recommendations for Work Plan and MOU Development



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Abbreviations

AET	Agricultural Education and Training
AFU	Agriculture and Forestry University
ANSAB	Asia Network for Sustainable Agriculture and Bioresources
AOI	Area of Inquiry
ASF	Animal Source Food
CCT	Cross-cutting Theme
CDAIS	Capacity Development for Agricultural Innovation Systems
CSU	Colorado State University
DADO	District Agriculture Development Office
DLS	Department of Livestock Services, Nepal
FAO	Food and Agricultural Organization of the United Nations
FORWARD	Forum for Rural Welfare and Agricultural Reform for Development
HART	Himalayan Animal Rescue Trust
HCD	Human Capacity Development
HICAST	Himalayan College of Agricultural Sciences and Technology
HICD	Human and Institutional Capacity Development
HI-N	Heifer International, Nepal
ICD	Institutional Capacity Development
ICIMOD	International Centre for Integrated Mountain Development
IFAS	Institute of Food and Agricultural Sciences
ILRI	International Livestock Research Institute
INGO	International Non-Governmental Organization
LIBIRD	Local Initiatives for Biodiversity, Research and Development
MADE	Multi-dimensional Action for Development Nepal
MOAD	Ministry of Agricultural Development
MOLD	Ministry of Livestock Development
MOU	Memorandum of Understanding
MSU	Michigan State University
NARC	Nepal Agricultural Research Council
NGO	Non-Governmental Organization
NPS	Nepal Polytechnic Institute
NTNC	National Trust for Nature Conservation
NZFHRC	National Zoonoses and Food Hygiene Research Centre
OCD	Organizational Capacity Development

TAP Tropical Agriculture Platform
UF University of Florida
UNDP United Nations Development Program
USAID United States Agency for International Development
WWF World Wildlife Federation

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Introduction

The U.S. Agency for International Development (USAID) awarded the University of Florida (UF) Institute of Food and Agricultural Sciences (IFAS) funds to establish the Feed the Future Innovation Lab for Livestock Systems. This five-year initiative (October 2015 to September 2020) supports USAID's agricultural research and capacity building work under Feed the Future, the U.S. Government's global hunger and food security initiative. The International Livestock Research Institute (ILRI) is the UF/IFAS partner in implementation of the Livestock Systems Innovation Lab.

The Agriculture and Forestry University (AFU) is a strategic institution for Livestock Systems Innovation Lab projects in Nepal in research and teaching capacities. This report is the results of a rapid gap analysis on the human and institutional capacity development (HICD) strengths and weaknesses of AFU as providers of manpower, education, and research in livestock systems. The rapid analysis included in-depth interviews and focus groups with stakeholders internal to and external to AFU. Interview and focus group questions investigated the strengths and weaknesses of the college at the individual, organizational, and enabling environment levels. These questions were intended to determine the training needs for improving research and teaching in livestock systems as well as the blockages within the organization and environment to effective research and teaching. After conducting the gap analysis, the HICD team presented the results to AFU and facilitated a participatory workshop to discuss the results and prioritize the capacity development gaps for potential collaboration between the Livestock Systems Innovation Lab and AFU.

This report provides an overview of the Livestock Systems Innovation Lab capacity development approach, the results of the rapid gap analysis, AFU's prioritization of capacity development gaps and suggested areas of intervention, and recommendations for next steps in the development of a scope of work (SOW) and memorandum of understanding (MOU) with the Livestock Systems Innovation Lab and AFU. This report, with the feedback from AFU, the Livestock Systems Innovation Lab, and USAID will be the basis of the SOW and MOU.

Livestock Systems Innovation Lab Capacity Development Approach

The USAID framework for HICD, as well as other newer models for HICD, emphasizes the connection between building the capacity of an individual and organization, and systemic change at the institutional and enabling environment level. Human capacity development can only function for the growth of the individual, organization, and institution when newly acquired skills are supported by infrastructure, resources, policies, and the capacity to change and adapt.^{1,2} As such, in-depth analyses of human and organizational capacity, institutional gap assessments, and collaboration with key stakeholders must be conducted to fully address HICD needs. These efforts must align with organizational needs and abilities and use an iterative and collaborative process.^{3,4,5} For the purposes of this project, the following definitions will clarify our objectives and activities in terms of

¹ Jones, K., Rojas, C., and Gill, T. (2015). Degree training and curriculum development to support HICD: Good practices from USAID Collaborative Research Support Programs and Feed the Future Innovation Labs for Collaborative Research. Blacksburg: InnovATE.

² USAID. (2014). African higher education: Opportunities for transformative change for sustainable development. Washington, D.C.: USAID.

³ Ibid. Jones, K., Rojas, C., and Gill, T. (2015).

⁴ USAID. (2010). Human and institutional capacity development handbook. Washington, D.C.: USAID.

⁵ Ibid. USAID. (2014).

capacity development. Figure 1 shows the relationship between individuals, organizations, and the enabling environment.⁶

The individual (human) level: the skills, experience, and knowledge that allow individuals to perform. Access to resources and experiences that develop individual capacity are shaped by the organizational and environmental factors in which the individual operates, which in turn are influenced by the degree of capacity of the individual.^{7,8}

The organizational level: the internal structure, policies, and procedures that determine an organization's effectiveness.⁹ This includes support systems (fiscal, human resource, technical), incentive systems, and organizational goals and plans that influence an individual's ability to perform.^{10,11}

The enabling environment level: the broad social system within which individuals and organizations function, including the rules, laws, policies, power relations, and social norms that govern civic engagement.^{12,13} The enabling environment involves how human capacity functions within the organization and the environmental system that surrounds it.^{14,15} These connections extend to external institutions such as government, civil society, the private sector, and the larger cultural system.¹⁶

Institutional arrangements: the policies, practices, and systems that allow for the effective functioning of an organization or group. This includes policies and laws, the legal environment, terms of contracts, and informal rules such as codes of conduct and generally accepted values.^{17,18}

The Livestock Systems Innovation Lab's HICD plan is built on a rationale that: *Strong, knowledgeable livestock systems scientists and researchers, along with effective and competent institutions, are essential for the development of agricultural innovation systems and specifically, livestock innovation systems.* To that, we add that an *enabling environment (innovation policies and investments, agricultural policies and educational policies) that encourages and permits innovation is just as important.* Figure 2 below shows a conceptual model of our Theory of Change and the interactions between human capacity, institutional capacity, and the enabling environment.

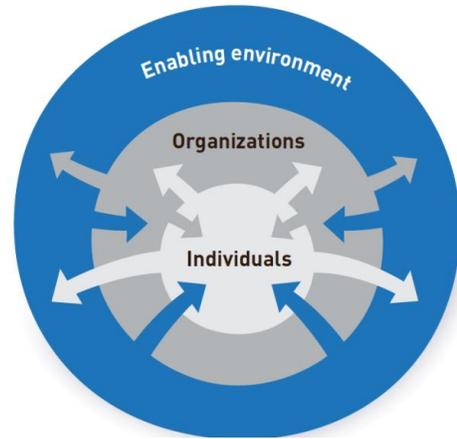


Figure 1: Three types of capacity development

⁶ FAO. (2016). Common Framework on Capacity Development for Agricultural Innovation Systems: Synthesis Document. Tropical Agriculture Platform. Rome.

⁷ Ibid. FAO, (2016).

⁸ UNDP (2009). Capacity development: A UNDP primer. New York: United Nations Development Programme.

⁹ Ibid. UNDP (2009).

¹⁰ Ibid, FAO (2016).

¹¹ USAID. (2012). Country systems strengthening: Beyond human and organizational capacity development. Background paper for the USAID experience summit on strengthening country systems. Washington, D.C.: USAID.

¹² Ibid, FAO (2016).

¹³ Ibid, UNDP (2009).

¹⁴ Ibid, FAO, (2016).

¹⁵ Ibid. USAID (2012).

¹⁶ Ibid. USAID (2012).

¹⁷ Ibid, FAO (2016).

¹⁸ Ibid. UNDP (2009).

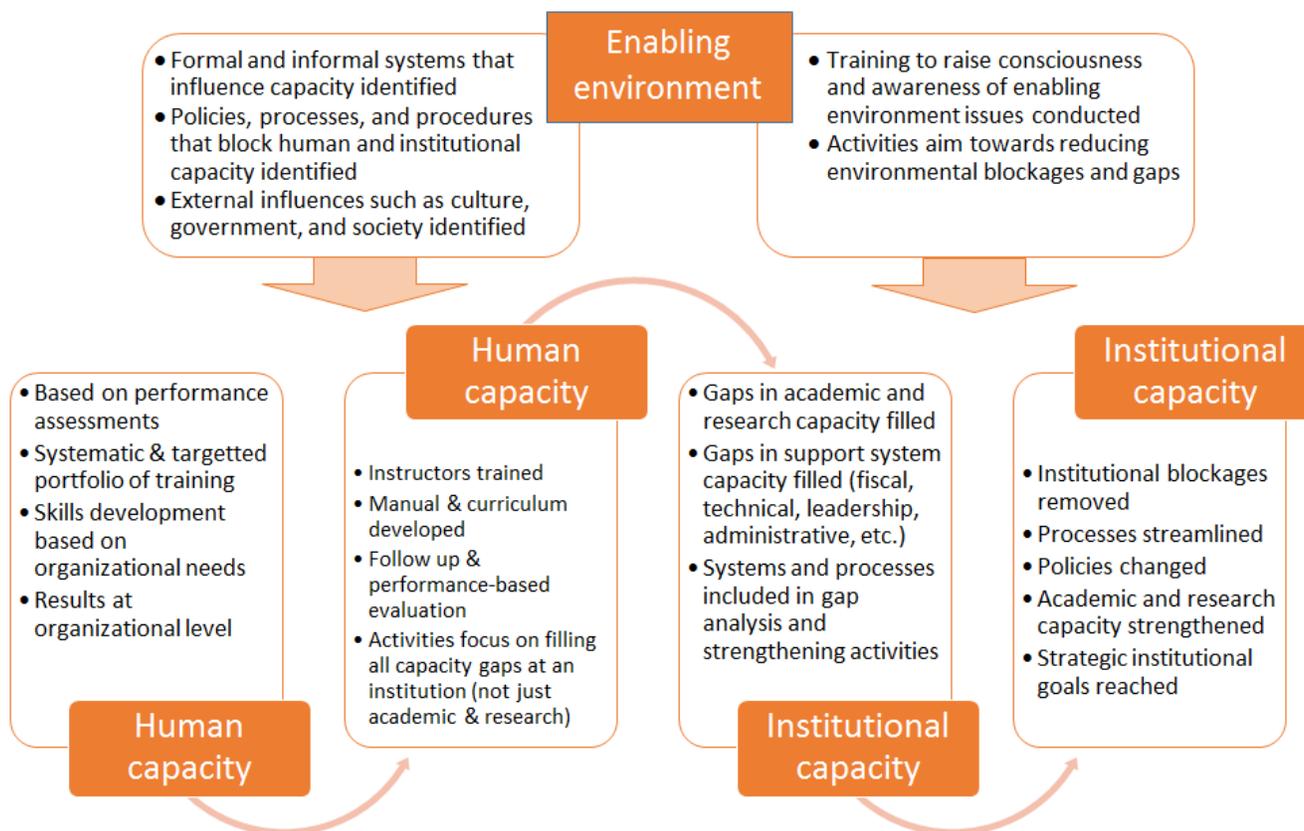


Figure 2: Conceptual Model of HICD Theory of Change

After a close examination of the recent capacity development literature and documentation, we focused our core HICD efforts on Agriculture Education and Training (AET) institutions that are partnering with the Livestock Systems Innovation Lab to conduct research as:

- AET institutions have both faculty and students who are conducting research in animal source food (ASF) systems.
- The focus of AET institutions on faculty and students will lead to longer-term sustainability of HICD efforts and other research investments, as students move from the AET organizations into research, government, extension, and various roles in ASF value chains.
- Many AET institutions have partnerships with government research institutions. Inclusion of these institutions in key stakeholder interviews/focus groups will allow the HICD team to evaluate the working relationship between both AET and government-based research institutions, and explore avenues to strengthen research collaboration through HICD activities.
- Many AET institutions are positioned to be focal points for current and/or future human capacity development such as professional development training and skills updating, across ASF institutions, including public, private, and extension systems.

With these issues and priorities in mind, the Livestock Systems Innovation Lab HICD team proposed a phased process that will focus on capacity development efforts with partner AET organizations through:

1. Identifying and filling the human and organizational capacity related gaps in target Livestock Systems Innovation Lab partner institutions that align with the priorities of the Areas of Inquiry (AOIs), cross-cutting themes (CCTs), and sub-awardees.
2. Attuning to institutional arrangements and the enabling environment in which the Lab's efforts are operating, and collaborating with governmental, non-governmental, and private organizations to provide recommendations to strengthen institutional arrangements and establish a positive enabling environment. We plan to collaborate with our partner institutions and their stakeholders to ensure that they are an integral part of the HICD planning process and activities.

In Nepal our HICD efforts will focus on AFU and HICAST as a primary Livestock Systems Innovation Lab partners. The Nepal Agricultural Research Council (NARC) and the National Animal Science Research Institute (NARSI) are considered strategic partners and will be considered for HICD efforts when their needs align with the activities targeted to AFU and HICAST.

Data Collection and Analysis

Data collection took place over two time periods. In December of 2016 the HICD team conducted a one-day workshop at AFU to identify the strengths, weaknesses, opportunities, and challenges/threats facing the organization. The results of this workshop are presented in Appendix A: Initial AFU Gap Finding Workshop Results, 2016. In December of 2017 the HICD team returned to Nepal and used the 2016 results as the basis of a full gap analysis. Data collection included in-depth interviews and focus groups internal and external to AFU. These data were analyzed using thematic analysis and the results were presented to AFU in a follow-up workshop. In this workshop, the participants discussed the results of the gap analysis and prioritized areas of intervention. The results of the analysis and workshop are discussed below.

The representation at the participatory workshop was diverse including participation from AFU administration (20% of participants), senior faculty (40% of participants), and junior faculty (40% of participants). In total, 21 people from AFU participated in the workshop, including the deans of the target departments in veterinary and animal sciences. The data from the workshop are available in Appendix E: Full Gap Analysis and Priority Setting Workshop Results.

The results of the analysis and workshop and the subsequent suggestions from AFU are discussed below.

Rapid Gap Analysis Results

While the focus of this report is on the capacity development gaps at AFU, it is important to state that the interview, focus group, and workshop participants had many positive comments about the organization and the manpower that they produce through the various degree programs offered. Some of the overall positive comments about AFU include:

- AFU is the primary producer of livestock systems manpower in Nepal and is a well-regarded university, overall.
- The graduates from AFU are seen as equally competitive as students graduating from HICAST.

- AFU has made improvements in the promotion system which has improved morale and the working environment.
- The community views AFU as a positive organization and speaks highly of the extension referral services that are offered, particularly by the veterinary program.

The data collected during the rapid gap analysis are presented in the following appendices:

- Appendix B: AFU Livestock Systems Capacity Rapid Gap Analysis - Table
- Appendix C: AFU Livestock Systems Capacities Rapid Gap Analysis Flowchart
- Appendix E: Full Gap Analysis and Priority Setting Workshop Results

The results are organized in terms of the human, organizational, and enabling environment gaps. It is important to note that there are multiple overlaps between these levels of capacity development.

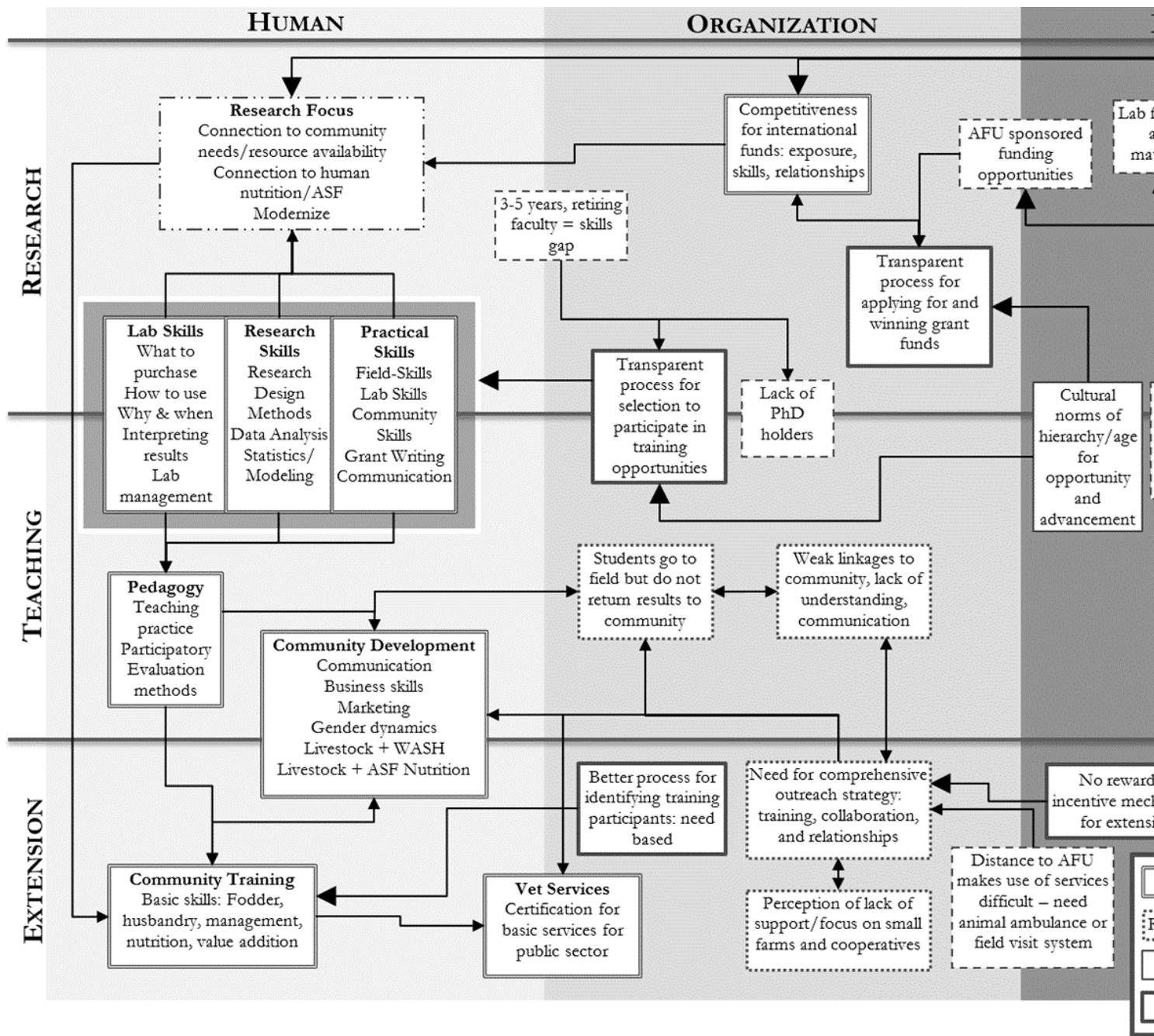


Figure 3 shows a flowchart of how the capacity development gaps link to one another through the individuals, organization, and enabling environment.

Human Capacity

- Develop instructor laboratory and other practical skills:** Overall, the perception of AFU and external stakeholders is that the curriculum is rigorous and competitive, particularly regarding theory. The area of curriculum that participants are concerned with is in laboratory and practical skills. While the textbooks and curriculum do address these skills, the faculty does not have the capacity to implement practical training. There is a feedback loop in which faculty do not have the knowledge, time, or materials to teach the

practical aspects of the curriculum, and the students who then graduate become faculty who cannot adequately teach practical skills. This is also an issue at HICAST and NARC, where the majority of degree holders have graduated from AFU and/or Tribhuvan University. Over time, this has resulted in a general deficiency in this area. It is also important to note that beyond the capacity of the instructors, a lack of laboratory and field infrastructure and materials has a direct impact on the ability of faculty to implement practical skills training. In cases where the faculty have received laboratory and field training, this has frequently been done overseas in institutions with significantly more advanced procedures and equipment. When the faculty return to Nepal they are unable to replicate these skills without the equipment on which they learned, and are lacking in ideas on how to modify what they have learned to the local context.

In addition to a lack of resources, there is a general lack of understanding of how to manage a laboratory including knowing what equipment should be purchased, what it should be used for, and how to interpret the data. In some cases, the faculty state that while there is basic equipment available, there is a lack of knowledge of how to use the existing equipment and how to interpret laboratory results.

- 2. Updating of faculty knowledge:** There are limited opportunities for faculty to update their knowledge. This issue trickles into curriculum reform where there are complaints that the curriculum is not up-to-date with new changes in agriculture and livestock systems. When faculty do receive training, there are no mechanisms or incentives for them to share this new knowledge with others.

A major barrier to the updating faculty knowledge is the cultural practice of giving priority for opportunities (such as participation in training) based on age and number of years at an organization. This results in training opportunities being provided to the senior faculty rather than the junior faculty. The result of this is that those who have received updated knowledge and training are largely administrators who do not conduct teaching or research or are faculty who are nearing mandatory retirement age. In the long-term, there is a growing gap between junior and senior faculty in knowledge, skills, and attitudes. Some of the specific areas identified as deficiencies by the stakeholders within and external to AFU include:

- Modern technologies and innovations
- Laboratory skills and management
- The “research package” including design, analysis, statistics and modeling, and interpretation
- Updated research methods
- Writing for publication
- Grant writing
- Teaching pedagogy and practices
- Biosecurity including WASH relationship to livestock sector
- The “suite” of community development skills including working with communities, communication skills, and gender/culture dynamics
- The relationship between ASF and human nutrition
- Entrepreneurial and business skills
- Practical work including labs and field work

- 3. Development of faculty to a mandatory education level:** Many of the AFU faculty who hold advanced degrees are nearing retirement. This gap of mid-career, mid-level academics is common globally. As such, the development of full-time faculty up to a minimum mandatory education level is a priority stated by AFU

and other stakeholders for the long-term sustainability of the institution. This issue also prevents the institution from offering a wider suite of advanced degree programs to prospective students.

4. **Pedagogy:** The quality of education and teaching practice varies widely. Some faculty are highly engaging, responsive, and skilled educators, and others rely solely on PowerPoint and exams. There are also reports of some faculty, particularly junior faculty, who have knowledge gaps in the area that they are teaching and either rely on students to teach one another or skip sections of the syllabi.
5. **Community development and training:** Communities, cooperatives, farms, and related organizations perceive that there is little involvement from AFU beyond student internships and site visits. In the case of students, the public would like to see students return the results of their work to the communities – whether it be laboratory results from blood samples taken in field practice or the results of a study conducted during an internship. Currently, this is not taking place resulting in a growing sense of distrust with the university. Coupled with these issues is a sense that the research conducted by AFU is too technological and does not transfer well to the field, and that AFU focuses any outreach or extension efforts only on the largest farms, neglecting the smaller cooperatives and farms. The community would like to see AFU become more involved with direct training on subjects including:
 - Fertility and reproductive management
 - Husbandry
 - Nutrition
 - Ration balancing
 - Developing fodder locally
 - Farm management
 - Value addition
 - Linking to markets
 - Biosecurity and WASH
 - Business skills

A similar issue presented by the community and the students is a sense that students are not prepared for working within different cultural contexts. This includes issues of communication skills, working with communities collaboratively, and the local contexts regarding gender, religion, ethnicity, and class.

6. **Lack of exposure to outside institutions and ideas:** Coupled with the lack of PhD holders at AFU and the above discussed human capacity issues, there is a general problem in Nepal of a lack of exposure to ideas and institutions outside of Nepal. The majority of degree holders in the animal sciences, veterinary sciences, and agriculture fields in Nepal have graduated from AFU and/or Tribhuvan University. Because of this, there is a replication of strengths and weaknesses throughout the agriculture and livestock sectors. Some of the issues that the participants attribute to this lack of exposure include a replication of out-of-date research methods, a use of traditional methods over modern methods, a lack of new ideas and innovations, a poor research portfolio, a lack of relationships and collaborations in the wider research community, and a lack of competitiveness for international research funding.

Organizational Capacity

7. Development of a new “Buffalo Research Center”

AFU is currently taking a lead on establishing a “Buffalo Research Center.” Buffalo contributes more than half of the milk and two-thirds of the meat in the country. As cattle are challenging in the Nepali context due to the religious significance of cattle and laws that prevent culling, slaughtering, or exporting cattle, many farmers are reluctant to enter dairy cow husbandry. In response to these issues, AFU is taking a lead in focusing on buffalo in its livestock farm, encouraging faculty and student research on buffalo, are intensifying buffalo ranch networks, are organizing international symposia on buffalo, and are actively participating in the Asian Buffalo Congress and World Buffalo Congress. This year, AFU is establishing a Buffalo Research Center and has started working on studying genetic diversity, developing a cross bred buffalo suited for Nepal, improving the reproduction potentiality through applying assisted techniques for AI/embryo transfer, and improved feeding practices. AFU specifically requests expert support while establishing the research center as well as trainings on the above mentioned areas of focus.

8. Collaboration and communication between AFU and the organizations with whom they collaborate:

Because of the lack of adequate resources at AFU, particularly regarding field sites, the institution depends heavily on collaboration with outside organizations to conduct their teaching and research activities. The administration and faculty at AFU tried to establish these relationships to fill the gaps in the institution. However, despite these efforts, poor collaboration and communication between AFU and collaborating institutions was a theme throughout the initial 2016 participatory activities and the focus group discussion. There are insufficient MOUs and similar official linkages between AFU and other institutions. The participants identified a need for more collaboration for access to laboratories and farms, and formalization of collaboration with government agencies. Horizontal linkages within the institution are also seen as an issue within AFU.

9. Policies and procedures including merit-based evaluation and incentive systems: Several policies and procedure issues directly affect the capacity of the faculty.

Promotion: The typical promotion system in Nepal is based on age and number of years at an institution. Since the initial 2016 workshop, AFU has instituted a new system that allows young faculty to be promoted at a faster rate, based on education level and number of publications. For example, if a junior faculty member has five years at the University + a PhD + a minimum of two peer-reviewed journal publications + a minimum number of “points”, they may seek a promotion. Similarly, if a junior faculty member has eight years at the University + an MSc + a minimum number of peer-reviewed journal publications + a minimum number of “points”, they may seek a promotion (Note that it is unclear to the author how the “points” work). AFU should be commended for attempting a new system that gives research faculty a vehicle for earlier promotion, However, it is important to note that the system of promotion based on number of years still exists, and a faculty member can receive automatic promotion after eleven years at the University. The junior faculty report that the new system is motivating for them. However, there still exists an overall lack of accountability and a system of “coasting,” where some faculty put forth little effort in their job versus others who put forth great effort. Coupled with this is an issue of contracts that are lacking specific and measurable job responsibilities (discussed below).

While the opportunity to advance faster exists for research faculty, there remains a deficit in a similar program for teaching faculty. Currently, there is no evaluation or promotion system for teaching faculty other than the culturally driven system of number of years at an institution. Similarly, there exists no

reward, incentive, or promotion mechanism for participation in extension and outreach activities, despite being a mandate of AFU.

Contracts and job responsibilities: The participants report that AFU does not specify the job responsibilities adequately in contracts. This leads to issues of time allocation within the RTE structure, a lack of foundation for job evaluations, and an overall lack of accountability. Importantly, this extends to the support staff and other human resource personnel.

Selection for training: A direct blockage to the development of young faculty is an informal system of selecting people to attend training based on seniority. This results in older, more experienced faculty being selected for training, even when they may not be teaching or conducting research (such as administration), or are nearing mandatory retirement. This is resulting in a growing skills gap between senior and junior faculty as well as a sense of frustration for young faculty who are seeking to build their skills.

Teaching evaluations: At AFU as well as other education institutions in Nepal, a system of teaching evaluation is currently not in place. This includes evaluation of the syllabus and evaluation of the instructor. This results in students having no feedback mechanism for the instructor or college. In addition, teaching faculty are not evaluated based on their teaching practice but on number of years at the University, alone.

Transparency: The final policy issue is a lack of overall transparency in processes and procedures. Many of the decisions that are made within the college come down from the administration level with little or no input, feedback, or communication with the faculty and staff. This issue spans promotion, hiring and firing, incentives, research funds, and more. Similar to the above discussed process issues, this leads to faculty feeling as if they have no power, no incentives, and low trust with the university.

Enabling Environment

- 10. Lack of resources, support, and strategic plan to carry out the new R/E mandates:** When AFU gained independence from Tribhuvan University, the areas of research and outreach/extension (R/E) were added to their mandate. However, the overall management of the university, including budget allocation and time allocation (for faculty and staff), has not yet caught up with the change in mandate. This is partially due to the addition of the R/E mandate without an increase in funding from the Nepali government. This is currently putting a strain on the existing AFU budget and is a significant challenge for the university to meet its charge. Additionally, DLS is the government institution that has the role of extension. This puts AFU in direct conflict with DLS as a service provider. As of the writing of this brief, this issue has not been resolved and is both causing conflict between the organizations and is preventing AFU from developing and implementing a comprehensive plan and strategy for an outreach and extension program. It will be important for AFU to collaborate with MOLD and MOAD at the national level to develop a specific, actionable mandate for AFU that is not in direct conflict with the mandate of DLS. This will include the associated policies and laws that will enable AFU to conduct extension work without conflicting with DLS.
- 11. Morale, particularly among young faculty:** Poor morale at AFU was discussed throughout the data collection activities. The issues with morale include lack of resources, lack of support and motivation to conduct research, lack of encouragement and mentorship from experienced and senior faculty, and a general sense of passiveness and powerlessness by the faculty, particularly the junior faculty. The lack of distinct job descriptions including time allocation to research and teaching, monitoring and evaluation of faculty

performance, and reward systems for performance all directly impact faculty morale. Additionally, the lack of job descriptions with specific time allocations for research and teaching dis-incentivizes faculty from conducting research, as their priority becomes the immediacy of teaching responsibilities.

12. Infrastructure and material resources: Despite being funded by the Nepali government, there is an overall sense that AFU is lacking in upgraded infrastructure and material resources, particularly regarding laboratories,. This results in an inability for AFU to update their research portfolio, and a sense that AFU graduates lack sufficient practical skills.

13. Library systems and information technology (IT): Several of the participants discussed a lack of sufficient library and information technology systems and the limited capacity of the existing staff. This includes infrastructure and materials issues such as lack of adequate computer facilities, high-speed internet, e-library tools, access to academic journals and distance education tools. However, there is currently an initiative being conducted by a young faculty member to implement high speed internet at AFU, and it is estimated that this will be available within the next six months. The long-term plan is to implement a logon system that will allow AFU to keep traffic to academic pursuits, only. The addition of high-speed internet at AFU will allow for the possibility of video conferencing as well as greater access to online materials.

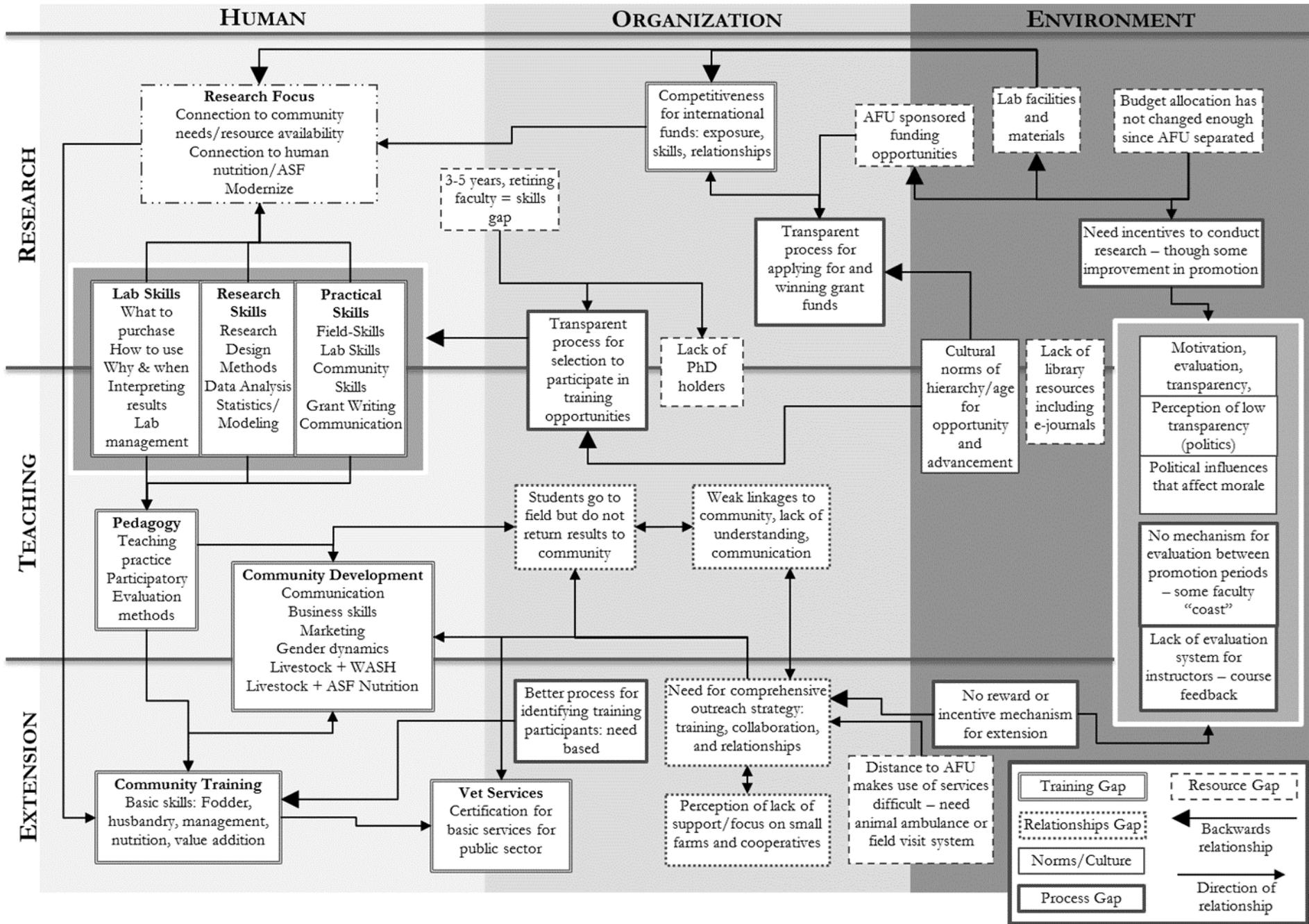


Figure 3: AFU Livestock Systems Capacities Rapid Gap Analysis Flowchart

AFU HICD Priority Setting Workshop Results

The suggested areas for collaboration identified by AFU during the participatory workshop are provided below. These suggestions will form the basis of the work plan going forward, though it will be necessary to explicitly define and narrow the scope of some of the suggestions. Any items related to infrastructure are *outside of the USAID scope and are noted by an astericks*. Some of AFU's suggestions below will likely be *outside of the budget of the HICD team and are noted by double astericks*. They are nevertheless included below as identified areas of priority from the organization(s). The representation at the participatory workshop was diverse including participation from AFU administration (20% of participants), senior faculty (40% of participants), and junior faculty (40% of participants). In total, 20 people from AFU participated in the workshop, including the deans of the target departments in veterinary and animal science. The Vice Provost was also present during the first half of the workshop. The data from the workshop are available in Appendix E: Full Gap Analysis and Priority Setting Workshop Results.

The gap areas identified by the AFU workshop participants was divided along junior faculty and senior faculty/administration lines. In the discussion, the senior faculty stated that this was not a lack of will to build the capacity of the organization in areas prioritized by the junior faculty, but rather areas that they felt would be the fastest and easiest to accomplish. After a lengthy discussion, the faculties agreed that the best methodology would be to take a two-pronged approach to capacity development at AFU. The first would be to immediately begin HICD efforts related to human capacity development, and the second would be a long-term initiative to make improvement in the organizational and enabling environment capacity development. The results of the prioritization are below, and are organized into the two primary areas identified.

Human Capacity Development

I. Capacity building of young faculty: Both junior and senior faculty recognize that there is a growing skills gap which will soon be exacerbated by the number of faculty nearing mandatory retirement. Despite this, the system of selection for participation in training opportunities favors senior faculty and administration. This issue will be discussed below under organizational capacity development. The faculty have requested a specific set of short-term training in the following subjects and themes:

- Laboratory skills and management
- The “research package” including design, analysis, statistics and modeling, and interpretation
- Updated research methods
- Writing for publication
- Grant writing
- Teaching pedagogy and practices

In addition to these direct requests, it was also suggested by external stakeholders that students and faculty would benefit from the following training:

- Biosecurity including WASH relationship to livestock sector
- The “suite” of community development skills including working with communities, communication skills, and gender/culture dynamics
- The relationship between ASF and human nutrition
- Entrepreneurial and business skills
- Practical work including labs and field work

Organizational Capacity Development and Enabling Environment Constraints

- 1. Processes, policies, and transparency:** While at first glance processes, policies, and transparency may seem outside of the scope of the Livestock Systems Innovation Lab, these areas are a major barrier to research and teaching capacity at AFU. Included in this are issues of formal evaluation and promotion process (though this latter process has recently been changed to include some merit-based options) rewards and incentives, and transparency. Currently in Nepal, this is the “norm” across institutions – public and private. Improvement in these areas are directly related to the long-term outcome of any training initiative that takes place. See Appendix C: AFU Livestock Systems Capacities Rapid Gap Analysis Flowchart for how these issues directly connect to human capacity development.

These issues were of particular concern to the junior faculty, who state that issues in processes, policies, and transparency directly affect morale, job stability, and productiveness at AFU. Senior faculty also recognize that this is an issue at the university and is common across Nepali organizations. The areas of collaboration suggested by AFU include:

- Assist in the development of recruitment and hiring procedures that are grounded in a competitive basis – including for support staff and other human resource personnel.
 - Assist in the development of a contract system with clearly defined job responsibilities and duties.
 - Assist in the development of processes and transparencies for the application, selection, and allocation of mini-research grants that are sponsored within the university.
 - Assist in the development of a clearly defined promotion and punishment system, expanding upon the new system that has recently been implemented for research faculty to include teaching faculty, support staff, and other human resource personnel.
 - Assist in the development of competitive processes in the selection of training participants and for other opportunities.
- 2. E-Library resources:** AFU is lacking overall in e-learning resources including equipment, access to journals, training on software, and more. At a minimum, AFU has requested that the Livestock Systems Innovation Lab HICD team assist with access to international journals, which at the moment is too expensive for the university.
 - 3. E-learning resources:** With the anticipated installation of high-speed internet at AFU, there are opportunities to assist the university with e-learning resources that will help develop technological capacity as well as a method of distance delivery of training. While a full suite of e-learning systems is beyond the budget of the HICD team, some basic infrastructure assistance such as tele-communication equipment could provide a basic set of options for AFU, and allow for the HICD team to deliver some of the requested trainings via distance.
 - 4. **Lab development and strengthening:** Lack of laboratory infrastructure and resources is lacking at AFU. Unfortunately, this is outside of the scope of the Livestock Systems Innovation Lab project. However, there is potential to assist AFU with management of existing laboratory facilities as well as training on what equipment to use, why, and types of analyses that could be conducted, which is discussed above.

5. ***Implementation of the University rule:** The University rule is a set of governance rules in place at Tribhuvan University. The implementation of the University rule is beyond the scope of the Livestock Systems Innovation Lab project.

Recommendations from the Livestock Systems Innovation Lab HICD Team

The Livestock Systems Innovation Lab HICD team's approach is founded on the participation of the collaborating institution. The results of the gap analysis has led to several important areas of intervention that were prioritized by AFU and outlined above. The HICD team recommends proceeding with the areas of intervention suggested by AFU with some exceptions related to funding constraints and scope constraints as discussed above. The suggestions from AFU will be further developed and narrowed in scope during the work plan process. In addition to the AFU identified areas of intervention, the HICD team suggests the following:

Leadership and Management Training for Administration

As discussed in the gap analysis results, there are several policies, procedures, and transparency mechanisms that are absent at AFU. This is not limited to AFU but was commonly discussed during data collection as an issue across other educational and governmental institutions. As such, this is an area of development which will be new in the livestock systems context in Nepal. The lack of these policies and procedures, the sense from junior faculty of job instability, and the overall need to improve the environment at AFU, are issues indicative of a need for leadership and management training for the AFU administration. The HICD team suggests collaboration for training on:

- Leadership and communication
- Strategic planning
- Policy development and implementation including transparency
- Monitoring and evaluation of staff and faculty

Potential Overlaps with HICAST

Many of the needs at HICAST mirror those at AFU. The differences in HICD are primarily seen at the organizational level as AFU is a public university funded by the government, and HICAST is a private college. The human capacity development needs are nearly identical. As such, there are potential synergies and opportunities to conduct training for both institutions. Areas of overlap include:

- I. **Human resource development/strengthening:** This includes improving the knowledge of faculty on areas of weakness including laboratories, pedagogy, and updated professional knowledge. Improvement in teaching practices was identified as an area of need. Training overlaps between HICAST and AFU based on the HICD gap analyses include:
 - Laboratory handling for faculties and lab staff
 - Pedagogy including effective teaching
 - The research “package:” modern research design, data collection and methods, data analysis with a specific emphasis on biostatistics and modeling
 - Grant hunting and proposal writing
 - Professional trainings on animal infertility, nutrition, disease diagnosis/surveillance
 - Animal handling – ethics
- II. **Resources:** There are significant resource gaps at both AFU and HICAST. Infrastructure development is outside of the scope of the Livestock Systems Innovation Lab project. Materials development are

outside of the budget of the Livestock Systems Innovation Lab project, with the exception of some key areas in which the HICD team may be of assistance including:

- Development of e-library materials
- Free journal subscription and access login
- Assistance in the development of distance learning capabilities

Potential Overlaps with NARC/NASRI

NARC/NASRI have similar needs regarding human capacity development as AFU and HICAST. This is because nearly all the researchers and educators at AFU, HICAST, and the government including NARC/NASRI have graduated from the same programs at AFU. As such, the capacity development gaps related to training are similar. Whenever possible, NARC/NASRI should be involved in training programs that will be provided to the other organizations. This is specifically regarding:

- Modernized research design
- Data collection and methods
- Data analysis – biostatistics and modeling
- Laboratory organization and management, the skills to use existing equipment, and how to know what equipment should be purchased
- Updating of knowledge – particularly in regard to animal nutrition and fertility

Other Stakeholders

Local stakeholders such as private farms and cooperatives state that though there are extension services, they are inadequate. Outside organizations would like to see more involvement from AFU and HICAST in the communities such as through direct training. When appropriate, outside stakeholders should be included in skills training – particularly basic skills development. Requests include farm management, husbandry, nutrition, and ASF development (such as value addition).

Next Steps

Following the rapid gap analysis, priority setting workshop, and report, the next steps will be to engage AFU in providing feedback on the report to ensure that the HICD team has accurately represented the concerns of the organization in relationship to the capacity development gaps identified. The HICD team will align the priorities suggested by AFU with the HICD budget, the Lab's goals, and the Lab's activities that are taking place in Nepal. This will be the basis of an HICD work plan, activities, and MOU with AFU. During this process, AFU and the Lab HICD team will collaborate to refine the priorities into actionable items as well as to narrow the scope of the areas that are currently not well defined, such as the needs for curriculum development and e-learning.

Livestock Systems Innovation Lab HICD Team

- Develop and disseminate HICD analysis report for feedback from AFU and the Livestock Systems Innovation Lab.
- Revise report and provide final HICD report for AFU and the Livestock Systems Innovation Lab stakeholders in English and Nepali
- Review existing Livestock Systems Innovation Lab work plans for Nepal to identify potential synergies in the activities of AOs, CCTs, and sub-awardees and the HICD team

- Collaborate with AFU to define and narrow the scope of activities based on AFU’s suggestions outlined in the gap analysis and develop these activities into an actionable work plan.
- Develop work plan, activities, and budget for Nepal HICD activities for feedback from AFU, Livestock Systems Innovation Lab, and USAID
- Develop an MOU with AFU for HICD activities in collaboration with AFU personnel

AFU

- Respond with comments to the HICD analysis report. The Livestock Systems Innovation Lab HICD team requests that at least one administrator with decision-making ability, one senior faculty, and one junior faculty member provides feedback.
- Determine persons at AFU who will collaborate on the development of a work plan and an MOU. The Livestock Systems Innovation Lab HICD team requests that at least one junior faculty member participates in the development of the work plan.
- Collaborate with the Livestock Systems Innovation Lab HICD team to define and narrow the scope of activities based on AFU’s suggestions outlined in the gap analysis and develop these activities into an actionable work plan.
- Collaborate with the Livestock Systems Innovation Lab HICD team to develop a work plan, activities, and MOU to fill capacity development gaps

Table 1: Next Steps and Responsibilities

Next Step Activity	Responsible Organization	Date Due	Jan	Feb	March	April
Develop and disseminate HICD analysis report	HICD Team	Feb 1				
Respond to report with comments	AFU Management Entity	Feb 15				
Revise report and provide final version to stakeholders	HICD Team	March 1				
Review existing Livestock Systems Innovation Lab work plans for synergies with HICD	HICD Team	Feb 15				
Determine collaborators on the development of an MOU and work plan	AFU	Feb 15				
Collaborate to define and narrow the scope of activities based on AFU’s identified priority gaps	HICD Team AFU	Feb 15				
Propose work plan, activities, and budget for feedback	HICD Team	Feb 15				
Provide feedback on work plan and activities	AFU Management Entity USAID	March 1				
Revise work plan and activities per feedback	LSIL-HICD	March 15				
Approve work plan and activities	USAID	April 1				
Develop MOU with AFU	HICD Team AFU	April 1				
Begin HICD activities	HICD Team AFU	May 1				

This report was prepared by Dr. Rebecca J. Williams for the Feed the Future Innovation Lab for Livestock Systems and the Agricultural and Forestry University of Nepal.

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Appendix A: Initial AFU Gap Finding Workshop Results, 2016

Current and potential collaborators (alphabetical)

- **ANSAB**, Asia Network for Sustainable Agriculture and Bioresources
- **Chambers of commerce in USA**
- **CSU**, Colorado State University
- **DADO**, District Agriculture Development Office
- **Dairy processors**
- **Department of Wildlife**
- **District farmer cooperatives**
- **DLS**, Department of Livestock Services, Nepal
- **FAO**, Food and Agricultural Organization of the United Nations
- **Farmers groups**
- **FORWARD**, Forum for Rural Welfare and Agricultural Reform for Development
- **HART**, Himalayan Animal Rescue Trust
- **AFU**, Himalayan College of Agricultural Sciences and Technology
- **HI-N**, Heifer International, Nepal
- **ICIMOD**, International Centre for Integrated Mountain Development
- **JLU**
- **JNU**
- **LIBIRD**, Local Initiatives for Biodiversity, Research and Development
- **Livestock/Poultry entrepreneur associations**
- **Livestock Systems Innovation Laboratory**
- **MADE-Nepal**, Multi-dimensional Action for Development Nepal
- **MOAD**, Ministry of Agricultural Development
- **MOLD**, Ministry of Livestock Development
- **Mothers' groups around AFU**
- **MSU**, Michigan State University
- **NARC**, Nepal Agricultural Research Council
- **Nepal Hatchery Association**
- **NICN**, National Innovation Center Nepal
- **NPS**, Nepal Polytechnic Institute
- **NTNC**, National Trust for Nature Conservation
- **NZFHRC**, National Zoonoses and Food Hygiene Research Centre
- **Poultry Entrepreneurs**
- **Private Dairy Farms**
- **UF**, University of Florida
- **USAID**, United States Agency for International Development
- **WWF**, World Wildlife Federation

Current and potential collaborators (by order of importance)

- | Current | Potential | Least Important or Likely |
|-------------------------|-------------------------|----------------------------------|
| • NARC | • USAID/LSIL | • AFU |
| • DLSO/DADO | • NARC | • Mother's groups around AFU |
| • Poultry Entrepreneurs | • Poultry Entrepreneurs | • Nepal Polytechnic Institute |
| • MOAD/MOL | • MOAD/MOL | • Farmers groups |
| • MOLPD | • DLSO/DADO | • Dairy Processors |
| | | • Chamber of commerce in USA |

Institutional Relationships

	Connection	Strengths	Gaps	Fill Gaps
Livestock Entrepreneurs & Commodity Associations (ex. poultry)	<ul style="list-style-type: none"> • PG thesis support • Research grant support • Employment generation to graduate students • Technical knowledge dissemination • Provide research field to the students • Lab support to the entrepreneurs • AFU provides technology • AFU provides diagnostic facility • Utilization/use of farms, feed industry for research • Joint seminar workshops • Fund support by enterprises • Research collaboration • Teaching • Human resources • Consultancies • Internships • Extension • Lab equipment support 	<ul style="list-style-type: none"> • Plenty of research field • Technical support to private sector • Private sector resource utilization • Chitwan is a poultry hub • Faculties/entrepreneurs linked to each other (know each other) • AFU graduates consumed in poultry sector • Expertise • Lab support • Resource utilization • Good relationship 	<ul style="list-style-type: none"> • Minimum (lack of) formal communication • Lack of proper discussion between two organizations • Lack of strong management and leadership of university in technology and research • No outreach program • Poor/no policies formulated • No good diagnostic facilities at AFU • Poor institutionalization • Poor lab support • Poor quality service • Poor extension 	<ul style="list-style-type: none"> • Formal/institutional linkage to be established • Model demonstration of farms/technology • Regular “needs assessments” to cope with university curriculum and research • Formulate policy • Develop diagnostic facilities at AFU • Institutionalize • Liaison office • Broadcast • Extension services
DLSO/ DADO	<ul style="list-style-type: none"> • PG thesis support • Collaborative research • Capacity development • Sharing of technical knowledge to the students • Support to internship program • Partnership to animal health camp • Technical sharing in different emergency diseases through meetings, seminars, workshops • Research output dissemination to the farmers • Identification of need based research • Extension of technologies • Expertise exchange • Knowledge/data sharing • Training/workshops • MS, PhD, Internships, Thesis • Animal health camp • Internship support • Farmers group exposure 	<ul style="list-style-type: none"> • Practical learning institute • Coordination in technical dissemination • Sharing of knowledge • MOU • Infrastructure • Government institutions • Human resource • Good relationship with AFU • Expert and resource availability • Good linkages with farmers groups through DLSO • Closest government-like agency 	<ul style="list-style-type: none"> • Low/lack of formal linkages • Poor/no technology dissemination • Disease outbreak investigation through study • Poor coordination • Applied studies/research • Poor official coordination • Weak resource utilization 	<ul style="list-style-type: none"> • Institutionalize the relationship between government and the university • Collaborative program should be established • Research tie-up with NARC • Involvement of government institutions on AFU’s curriculum development • Good coordination • Knowledge and learning sharing • Exposure visits • Establish official linkages • Effective resource utilization

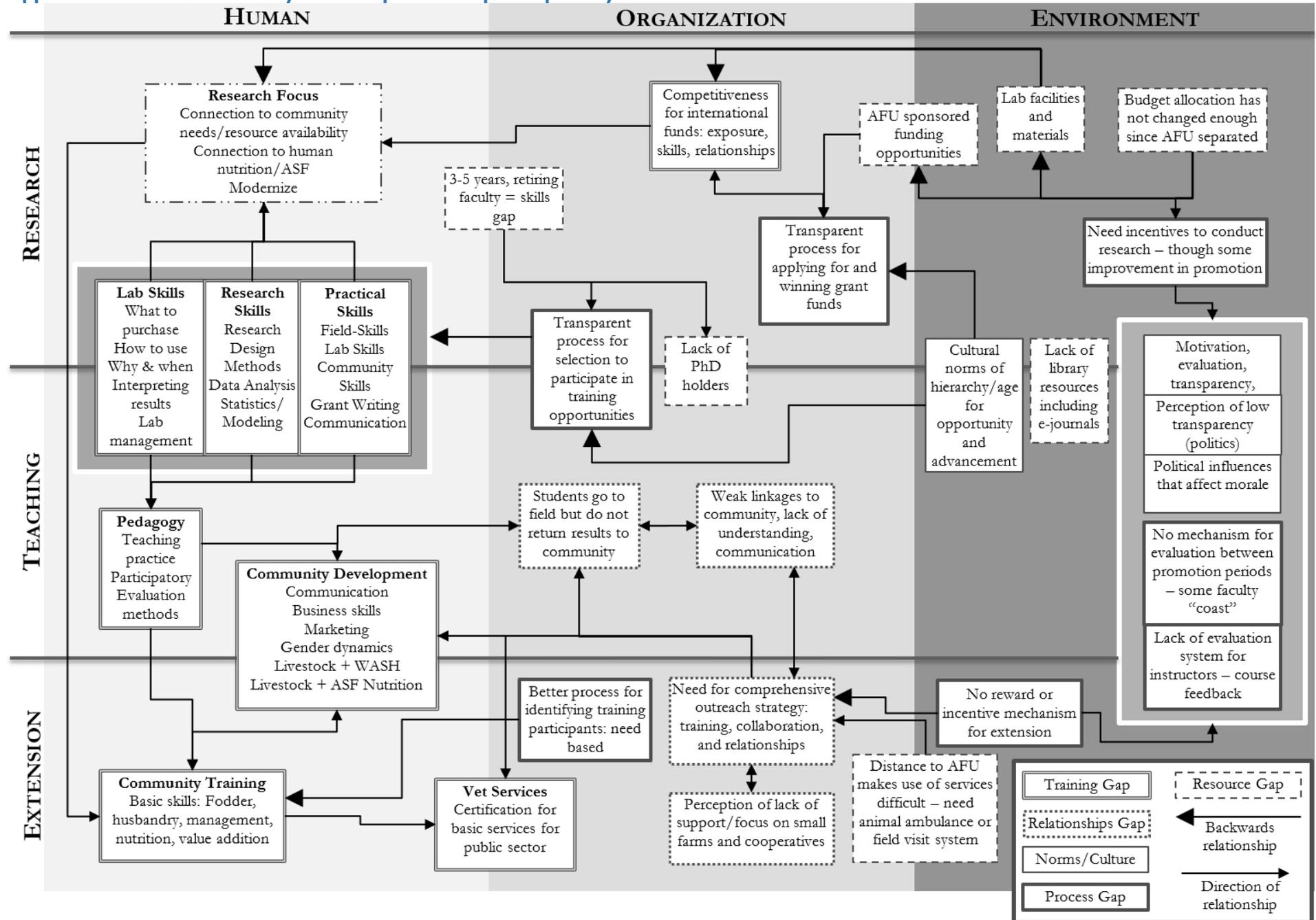
MOAD/ MOLD	<ul style="list-style-type: none"> • PG thesis support • Capacity development • Sharing of technical knowledge to the students • Support to internship program • Partnership to animal health camp • Technical sharing in different emergency diseases through meetings, seminars, workshops • Research output dissemination to the farmers • Identification of need based research • Major consumer of AFU graduates • Human resource development for MOLD • AFU gets support on capacity building • Human resources • Expert sharing • Project funding • Internship support • IT support • Ambulatory clinic support • Incinerator for VTH • Lab equipment 	<ul style="list-style-type: none"> • Practical learning institute • Coordination in technical dissemination • Sharing of knowledge • Separate ministry • Technical university • MOU • Training of in-service students • Sponsorship for masters and PhD students • Subject matter committee • Faculty board • Curriculum development support 	<ul style="list-style-type: none"> • Low/lack of formal linkages • Poor/no technology dissemination • Disease outbreak investigation through study • MOLD/MOAD has not identified support fields • Poor priority of MOLD/MOAD for research • Poor coordination • Poor organizational support 	<ul style="list-style-type: none"> • Institutionalize the relationship between government and the university • Collaborative program should be established • Research tie-up with NARC • AFU work with MOLD/MOAD extension to identify, prioritize, fund, and support research • Good coordination • Institutionalized support • Policy advice • Advocacy
NARC	<ul style="list-style-type: none"> • Collaborative research • Capacity development • Research and projects • Sharing of expertise, labs • Capacity building Ms, PhD, Internship and thesis • Research collaboration • Resources • Inter-relation • Expert sharing 	<ul style="list-style-type: none"> • Human resources • Physical resources • Research activities • Government institutions • Employees graduated from AFU • MOU • HR Support 	<ul style="list-style-type: none"> • Lack of horizontal relations • Policy gap • Poor coordination • Political intervention • Funding proposals • Lack of coordination and linkages 	<ul style="list-style-type: none"> • Group to group connection • Policy clarity • Effective coordination • Seminars, workshops, trainings • Sharing of human resources and physical resources • Improve coordination and linkages • Research grants for masters and dissertations
General	<ul style="list-style-type: none"> • (Poultry entrepreneurs) • (DLSO) • (MOAD) • (USAID) • (NARC) 	<ul style="list-style-type: none"> • Mutual understanding for research and extension • Teaching support • Good consumption of graduates • Sharing of resources • Transfer of technology and contribution to livestock development, food security, and nutrition 	<ul style="list-style-type: none"> • Lack of horizontal relations • Identifying key researchable issues • Direct physical (mandatory) and material support for research 	<ul style="list-style-type: none"> • Organizational provision (structural set-up) • Change in communication and collaborative structure • Long-term understanding for working in collaboration (problem-based solution) • Creating provision for strengthening bilateral and multilateral relations (top level policy)

Appendix B: AFU Livestock Systems Capacity Rapid Gap Analysis – Table

	HUMAN CAPACITY NEEDS	ORGANIZATIONAL CAPACITY NEEDS	ENABLING ENVIRONMENT CONSTRAINTS
Research	<p>Training Needs</p> <ul style="list-style-type: none"> • Modern technologies and innovations (updated) • Laboratory Skills: proper use of equipment, which technologies to purchase and why, when to use and why, modern methods and technologies, interpretation of results, lab management • Research design → Data analysis → Statistics/Modeling • Updated research methods • Writing publications <p>Research Gaps</p> <ul style="list-style-type: none"> • Market demands and existing constraints • Gender focused research (due to high male migration) such as goats, less input/time intensive livestock • Animal health and nutrition • See Country-wide issues for research needs (for both strengths and gaps at AFU) 	<ul style="list-style-type: none"> • Need for a goat research center • Diagnostic/veterinary capacity • Selection of appropriate personnel for training: should have a process to select for training based on need/interest • Transparency and consistency in processes to award research grant funds – need transparent, competitive process • Need for more PhD holders across AFU • Difficulties providing PhD programs with inadequate number of PhD holders to guide students • Research funds and AFU-sponsored funding opportunities • Competitiveness for acquiring international research funds – lack of exposure to scientists outside of Nepal, lack of relationships, technical grant writing skills • Many experienced and senior faculty are retiring – will be a significant skill gap in 3-5 years 	<p>AFU</p> <ul style="list-style-type: none"> • Poor laboratory infrastructure, lack of materials • Hierarchy mechanisms results in blockages in junior faculty to go into the field, get involved, and get training • Hierarchy mechanism results in the “wrong” people being trained, or people being trained and soon after retiring • Strong political influences within organization that affect morale • Lack of library facilities – particularly e-journals and digital resources • Budget has not adjusted to RTE mandate after separation from Tribhuvan • Encouragement/incentive to conduct research is lacking • Promotion system has improved – opportunities to advance faster than number of years, but still needs improvement, many “coast” by without penalty • Lack of evaluation system between promotion periods • Lack of evaluation of teachers, connection to promotion • No reward/incentive for faculty to conduct extension activities • Political influences within university lead to processes that are not transparent – though the perception is that this will improve with the change in government • Morale depends on the leadership of each unit – positive when non-biased, rules and processes are set, perception of fairness
Teaching	<p>Training Needs – Faculty & Students</p> <ul style="list-style-type: none"> • Updated teaching pedagogies and practices • Biosecurity including WASH relationship to livestock sector • Community development skills: working with communities, communication skills, gender dynamics, and relationship of ASF to human nutrition • Business skills • Perception of significant gaps in practical skills of all kinds: laboratory, fieldwork, community work, etc. • Advanced grant writing 	<ul style="list-style-type: none"> • Students go to community farms to take samples, but do not report back to the farmers – results in frustration and distrust – no requirement for students to return results to community • Linkage between AFU and community for teaching purposes is weak: Lack of understanding/communication between producers and students; distrust of students because of the importance of animals to the household (fear of students making mistakes), poor practical skills of students 	

	HUMAN CAPACITY NEEDS	ORGANIZATIONAL CAPACITY NEEDS	ENABLING ENVIRONMENT CONSTRAINTS
Extension	<p>Training/Research Needs – AFU & Communities</p> <ul style="list-style-type: none"> • Collaboration with farmers for research that directly connects to community • Biosecurity including WASH relationship to livestock sector • Community development skills: working with communities, communication skills, gender dynamics, and relationship of ASF to human nutrition • Business skills • Integrated farming techniques: agriculture → fodder → livestock • Local fodder sources/resources – nutrition and feed formulas • Marketing, linking to markets • Communities need practical basic trainings: husbandry, nutrition, management, etc. • Difficult and expensive to get veterinary care, even with DLS services and AFU referrals. Communities need ability to provide basic vet services, become certified • Value addition such as dairy processing 	<ul style="list-style-type: none"> • Research is too technological, not translating to field • Perception that AFU does not collaborate or conduct outreach to communities, or that it is insufficient • Community would like more direct collaboration/contact with AFU • Prioritization of larger cooperatives/farms, smaller are neglected • Distance to AFU makes it difficult for community to bring sick animals on referral from DLS – need field visits, ambulance, or other mechanism • Need a program to provide training and certification for basic veterinary care for community – perception from community that AFU should be a leader in this • Issues in selecting the appropriate personnel for training: should have a process to select for training based on need/interest • Need for a comprehensive plan/strategy for community outreach: Example: stakeholder meetings, producer feedback, on-farm research, identification of farmer needs, explanation of programs 	<p>Country-wide Livestock Issues</p> <ul style="list-style-type: none"> • Infertility • Genetic pool • Fodder from locally available resources • Seasonality – irrigation/fodder challenges • Expired/poor vaccinations, medicines – Drug Administration human focused, no MOLD representative in DA • Import issues – high costs, poor quality • Cultural/religious/political barriers in culling cattle • New government – positive, but potential changes to ministries • Some policies lacking: insurance, compensation, animal welfare, breeding • Lack of support programs from government for livestock sector – subsidies or seed grants

Appendix C: AFU Livestock Systems Capacities Rapid Gap Analysis Flowchart



Appendix D: Gap Analysis Workshop Agenda

FEED THE FUTURE INNOVATION LAB FOR LIVESTOCK SYSTEMS

Human and Institutional Capacity Development Partner Assessment – Phase 2

AFU, Chitwan – Wednesday, December 20th

The objectives of this workshop are:

1. Share and discuss the results of a rapid analysis of needs related to livestock research and education capacities including human, organizational, and enabling environment constraints.
2. Discuss opportunities & constraints to collaboration on capacity development between AFU and LSIL.
3. Prioritize capacity development areas of intervention.
4. Develop a tentative focus and plan of action for collaboration on capacity development between AFU and LSIL.
5. Identify key personnel for communication, planning, and decision-making for collaboration on capacity development.

Time	Activity
9:45-10:00	Registration
10:00-10:20	Welcome and introductions
10:20-10:50	Presentation of LSIL Rapid Analysis of capacity development needs at AFU
10:50-11:10	AFU presentation on internal needs assessment
11:10-11:30	Questions and discussion on LSIL and AFU assessments
11:30-12:00	Discussion of opportunities and constraints to collaboration
12:00-1:00	Lunch
1:00-2:00	Prioritization of capacity development interventions in working groups
2:00-2:40	Development of plan of action and identification of key personnel
2:40-3:00	Final discussion and comments

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Appendix E: Full Gap Analysis and Priority Setting Workshop Results

Forces For and Against Change

Junior Faculty

Forces for CHANGE 	Forces against EGNAHC 
<ol style="list-style-type: none"> 1. New university, more opportunities, maximum enthusiasm among young and senior faculties, too 2. Government funded technical university focusing in agriculture & livestock sector 3. Good will and institutional setup acquired by AFU 4. AFU with its mission and vision, covers all provinces of Nepal through student intake 5. Good quality student intake 6. Contributing technical/expert supports to poultry and livestock industries throughout the nation by individual expertise and institutional efforts 7. Being able to create a better linkage with communities, INGOs, NGOs, and GOs through university alumni 	<ol style="list-style-type: none"> 1. Strong political influence in university policy, decisions, and activities 2. Very low salary, incentives, and HR facilities 3. Lack of adequate HR, infrastructure, and budget 4. Lack of transparency and accountability in policy and decision making 5. Poor incentive, promotion, appreciation, and motivation 6. Unskilled, non-competitive and least qualified non-teaching staffs being designated and promoted 7. Highly qualified senior faculties are either getting retired or chaired as administrator, lacking their contribution in teaching, extension, and research 8. Lack of need-based research through faculty for teaching and extension

Senior Faculty and Administration

Items	Gap	Vision	+ Forces	- Forces
Human Resources	<ul style="list-style-type: none"> • Insufficient number • Qualifications 	<ul style="list-style-type: none"> • Standard teaching 	<ul style="list-style-type: none"> • State owned university • UGC • Annual budget 	<ul style="list-style-type: none"> • Motivation • Career benefits • Incentives • Political Commitment • Political influence
Infrastructure	<ul style="list-style-type: none"> • Lab setup • Farms – Production, teaching, and research 	<ul style="list-style-type: none"> • Quality education 	<ul style="list-style-type: none"> • Existing structures 	<ul style="list-style-type: none"> • Traditional practices
Research	<ul style="list-style-type: none"> • Infrastructure • Collaboration • Competitiveness 	<ul style="list-style-type: none"> • University credibility 	<ul style="list-style-type: none"> • Mandatory networking 	<ul style="list-style-type: none"> • Finances • Collaboration • Training
Extension	<ul style="list-style-type: none"> • Outreach stations 	<ul style="list-style-type: none"> • Community Service 	<ul style="list-style-type: none"> • Continuing education 	<ul style="list-style-type: none"> • Finances • Poor modality

Recommendations for Filling the Gaps

Junior Faculty

1. E-library, high speed internet
 - Free journal subscription and provide access login
2. University authorities should implement/impose the university rule
3. Reduce corruption – corruption not only in terms of money, but also in terms of duty, responsibilities, and services.
4. Administrative and academic positions should be created and recruited on a competitive basis, not political basis
5. Flow of research funds from root to top basis
 - Water the root to get the fruit
6. Capacity building of young faculty through exposure visit, training, and skill development activities
7. Promotional activity → clearly defined system
 - Promotion and punishment
8. Infrastructure development
9. HR → supporting staffs → hire on skill basis
10. Motivational activities → to reduce political dependency

MINIMUM STANDARDS and COMPETITIVE PROCESSES

Senior Faculty

Activities/Actions

1. Human resource development and strengthening. Trainings on:
 - Laboratory handling (faculties, lab staff)
 - Pedagogy (effective teaching)
 - Grant hunting, proposal writing
 - Biostatistics
 - Professional trainings on animal infertility, nutrition, disease diagnosis, surveillance
 - Animal handling (ethical, well fed)
2. Institutional capacity
 - Lab development and strengthening
 - E-learning facility, upgrading
 - Library (e-library)

Appendix F: Workshop Photos

