

Tanzania Dairy Value Chain Impact Pathways Narrative

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October 2013

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1. Tanzania dairy value chain problem context and underlying causes

The Tanzania dairy sector is mostly characterized by low milk productivity at farm level. Low productivity has been associated with several causes including poor disease control programs, poor skilled capacity to extend technical knowledge and information, and poor access to veterinary services due to high access costs. Inconsistent access to water resulting from seasonality is another factor closely associated with the low productivity of the sector. Although seasonality could be mitigated through water harvesting technologies, the absence of a strong water harvesting policy has been a major obstacle. Besides, farmers neither have the technical knowhow nor can they afford the technology needed for water harvesting. Low productivity is also a function of the low genetic potential of the dairy animals as a result of genetic materials being inaccessible, poor breeding programs due to poorly formulated breeding policies, inadequate knowledge, and few skilled personnel to promote improved breeding practices. In addition, poor quality feeds and the poor feeding practices applied by farmers have exacerbated the productivity problem. First, farmers do not have reliable and consistent access to feeds because of the poor feeds distribution system and limited access to land. Second, besides the feeds not being consistently available due to seasonality and the poor yield potential of existing forage varieties, the feeds are of poor quality due to farmers lacking the knowledge and skills and a weak regulatory framework for maintaining and enforcing feeds quality standards.

The second major challenge for the Tanzania dairy value chain is the poor access to production and market inputs and services. Several factors are associated with this problem, including the small-scale nature of the production systems, absence of appropriate organizational structures for farmers and other value chain actors, inadequate information regarding existing extension services and providers, few and poorly linked business service providers, and service providers not failing to target the “right beneficiaries”. Besides, existing organizational models for milk marketing are inappropriate for smallholder dairying, a factor which has denied many smallholders the opportunity to enter better milk markets and to access inputs and services. These organizational limitations, in total, reduce poor cattle keepers’ capacity to innovate, manage risk, reduce vulnerability, increase incomes, and ensure food security. The sector is also starved of appropriate credit facilities that can finance acquisition of basic inputs and services. This has discouraged investment in productivity improving innovations and thus perpetuating a low-input low-output vicious cycle.

2. Livestock and Fish CGIAR Research Program Tanzania dairy value chain vision and long term goals

The livestock and Fish program vision for Tanzania is of working towards a more inclusive and sustainable development of the dairy value chain. To achieve this vision the program aims at three principle goals:

- a) Smallholder farmers have reliable and consistent access to quality inputs and services in order to efficiently achieve high milk productivity.
- b) Smallholder famers have access to reliable, well-coordinated, and efficient dairy products marketing arrangement with resultant improvement in household income and livelihoods.
- c) Poor consumers have improved access to quality, safe, and nutritious dairy products at affordable prices to increase per capita consumption of the dairy products.

3. Tanzania Dairy Value Chain Impact Pathways

Livestock and Fish program interventions in the Tanzania dairy value chain will lead to a number long term changes in direct benefits to target population and the enabling environment that will include: increase in milk production, increase in household income and asset ownership accruing from milk production, improvement or maintenance of the status of the environment, and improvement in household nutrition and health status. These long term impacts will be achieved through four main pathways:

- a) Institutional innovations for reliable and consistent access to inputs and services.
- b) Innovative strategies for consistent and reliable access to Artificial Insemination (AI) materials and services, forage, and water.
- c) Generation of evidence for achieving impact at scale and influencing policy.
- d) Innovative strategies for increasing the consumption of dairy products.

The following actors will be important at the different stages to bring about the desired changes in the value chain:

- a) East Africa Dairy Development II (EADDII) a regional program, Heifer in Trust (HIT) in Tanzania, and SNV – Tanzania are the key development partners. Their roles will include setting the research agenda, facilitating the transfer of research outputs into use, and using research knowledge to catalyse the changes in attitudes, practices, and knowledge among actors identified along the impact pathways.
- b) International Livestock Research Institute (ILRI), Centre for International Tropical Agriculture (CIAT), Tanzania Livestock Research Institute (TALIRI), and Sokoine University of Agriculture (SUA) are the research partners.

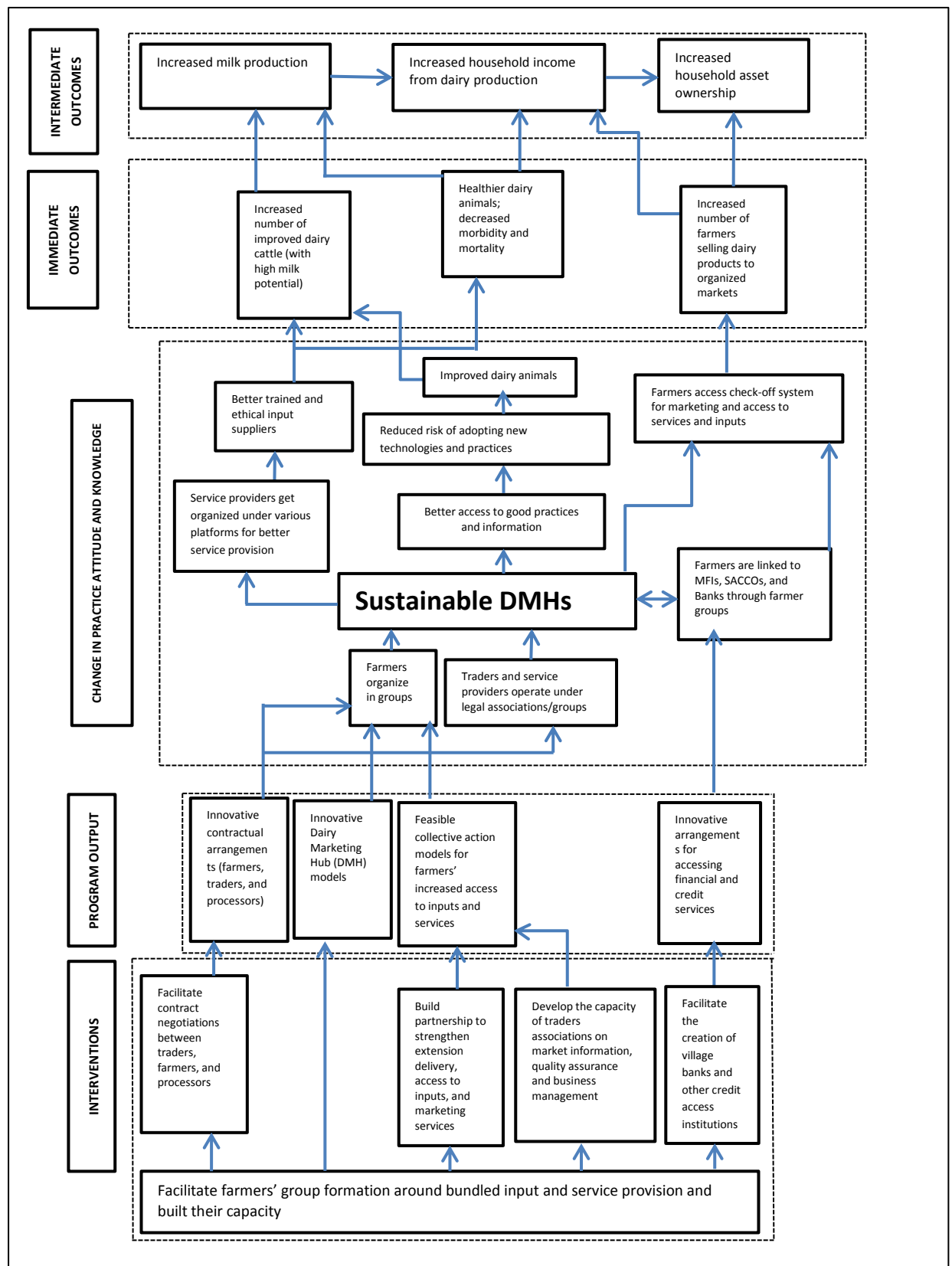
Research partners will contribute to sustaining the dairy platforms, improving coordination of the various value chain stakeholders, and developing appropriate dairy innovations.

- c) Tanzania Dairy Board (TDB), Tanzania Bureau of Standards (TBS), and Ministry of Livestock and Fisheries Development (MLFD) will contribute to regulating the industry and providing guidelines for controlling and maintaining the quality of dairy products.
- d) Dairy Development Forum (DDF), TAMPRODA, and Tanzania Milk Processers Association (TAMPA) represent dairy stakeholder platforms at the different levels of the value chains. These platforms will provide opportunities for identifying, reviewing, and addressing value chain constraints.

3.1 Impact pathway 1: Institutional innovations for reliable and consistent access to inputs and services

The ultimate impacts through this pathway will be increased household asset ownership resulting from higher household incomes via increased milk production (Figure 1). Increased milk production will arise as farmers improve their overall ownership of improved dairy cattle (i.e. cattle with high milk potential) and farmers keeping healthy dairy animals due lower mortality and morbidity rates. These outcomes will require several changes in knowledge, attitude, and practice to happen. For farmers to increase their ownership of improved dairy animals, traders and farmers will have to organize into innovative organizational structures, the structures/institutions will further be linked to input and service providers and ultimately strong and sustainable Dairy Marketing Hubs (DMHs) will emerge. The DMHs will then become the platforms through which farmers will access improved dairy innovations and information to increase their ownership of the improved dairy animals. Better access to inputs, services, and information through DMHs will also result in farmers owning healthier improved dairy animals through reliable access to better veterinary inputs and services. Moreover, innovative arrangements for accessing financial services will ensure that farmers are linked to MFIs, SACCOs, and banks through the DMHs. The key program outputs for creating sustainable DMHs will include innovative contractual arrangements between value chain actors, innovative DMHs models, and feasible and sustainable collective action models for increasing farmers' access to inputs and services. Targeted development and research activities in this pathway will include facilitation and testing of alternative contractual arrangements among the various dairy value chains actors, facilitation and testing of farmers' group formation processes and arrangements-especially around bundled inputs and services provision, research on building partnerships to strengthen service delivery, and research and facilitation of access to market information, quality assurance, and business management models.

Figure 1: Institutional innovations for reliable and consistent access to inputs and services

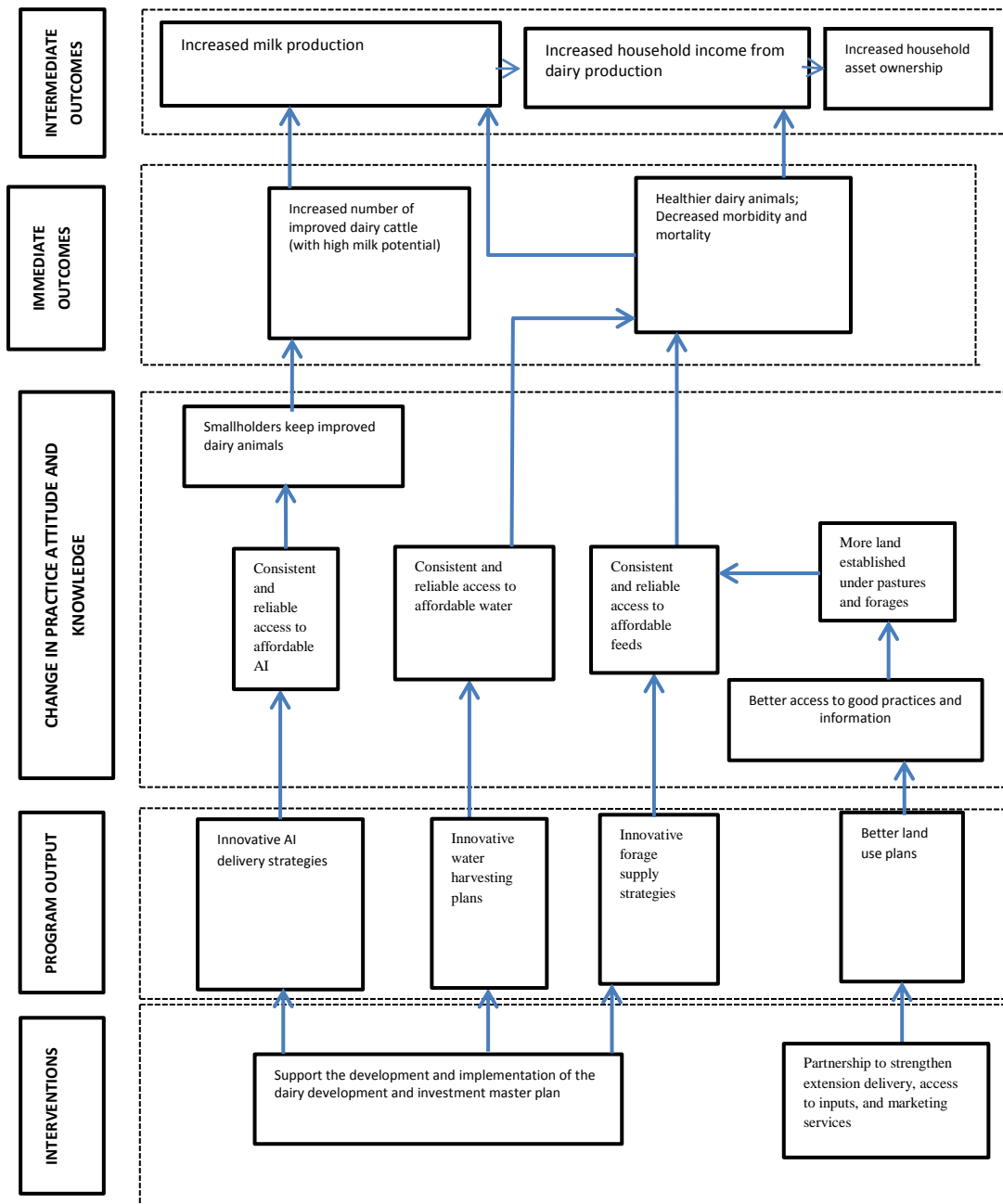


Higher household asset ownership and improved household income are also expected to arise from more farmers accessing and selling to organized markets. Anticipated changes in knowledge, attitudes, and practices to accelerate these outcomes will include farmers accessing check-off systems for marketing and accessing services and inputs, either through sustainable DMHs or through direct linkages with MFIs, SACCOs, and banks via sustainable farmer groups. The main program output to deliver on these outcomes will be innovative arrangements for increased access to financial and credit services where a specific research and development activity will entail focusing on creation of sustainable village banks and other credit access arrangements/models.

3.2 Impact Pathway 2: Innovative strategies for consistent and reliable access to Artificial Insemination (AI) materials and services, forage, and water

Impact pathway 2 will lead to increased milk production and increased household income through farmers owning more improved and healthier daily cattle due to lower morbidity and mortality (Figure 2). The most important changes in knowledge, attitudes, and practices leading to these outcomes via this pathway will include: 1) Farmers having more improved dairy animals as a result of having consistent and reliable access to affordable AI materials and services where the main output will be innovative AI delivery strategies developed. 2) Farmers will keep healthy animals as they consistently access reliable water, and the main output will be the innovative water harvesting plans/models. 3) Farmers will keep healthy animals as a result of having consistent and reliable access to affordable feeds. This will result from additional land being brought under pastures and forages as farmers start accessing more information on improved dairy practices. The main outputs will include innovative forage supply strategies and tested superior land use plans/models. In sum, program research and development activities leading these changes will mainly focus on supporting the implementation of a Tanzania dairy development and investment plan and building partnerships to strengthen extension delivery, and access to inputs and marketing services. The key assumptions being made include: the poor and smallholder farmers will continue to receive priority in development programs, donors' commitments to development support is sustained, and government's commitment to creation of incentives for increasing investment in agriculture and expansion of the private sector are sustained. The biggest risks to achieving this impact, on the other hand, will include the high transaction costs of managing complex networks of partnership might derail the achievement of the impacts.

Figure 2: Innovative strategies for consistent and reliable access to AI, forage, and water

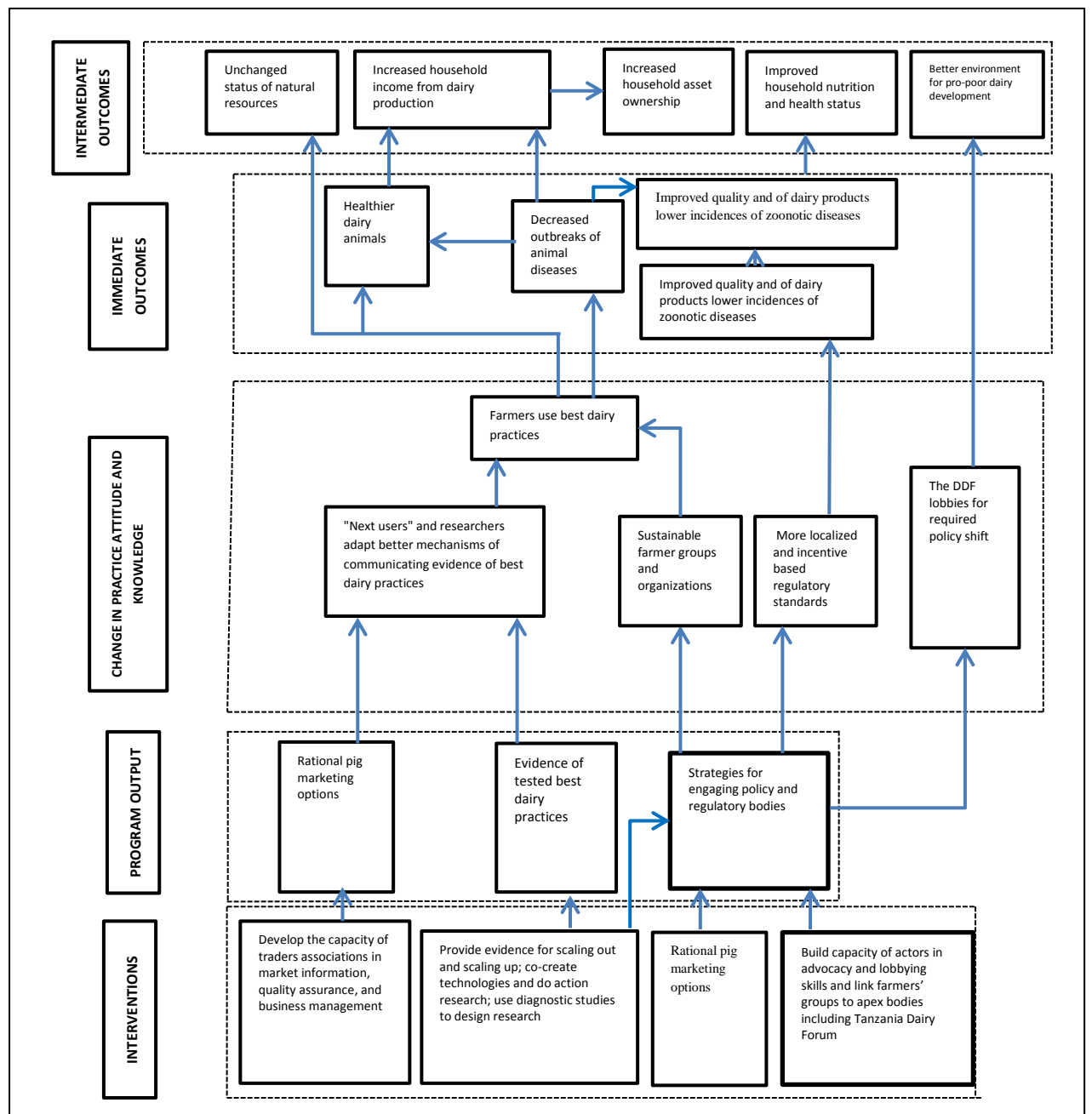


3.3 Impact pathway 3: Generation of evidence for achieving impact at scale and influencing policy

Impact pathway 3 involves the attainment of improved or unchanged status of natural resources, increased household income and asset ownership, and improved household nutrition and health status (Figure 3). The pathway heavily relies on providing evidence of good dairy practice as a way of influencing behavior and attitude of dairy value chain actors. Increased household income from dairy production is expected to be attained as a result of farmers owning healthy dairy animals via reduced outbreaks diseases. The attainment of this, including improvement or the unchanged status of natural resources will require 3 main changes in attitudes, knowledge, and practices: 1) 'next users'(including NARES) and researchers will adapt better mechanisms of communicating evidence of superior dairy practices, 2) farmers will organize in sustainable farmers' groups and organizations, and 3) farmers will adopt superior dairy practices. Program outputs will include evidence of tested improved dairy practices, and feasible marketing options for dairy products, and innovative strategies for engaging and influencing policy and regulatory bodies. The main research and development activities will include development of the capacity of traders' associations to access information on marketing, quality assurance, and business management; generating evidence of sustainable benefits accruing from improved dairy value chains to influence policy; generating evidence for scaling out and scaling up of innovations; and co-creation of technologies and use of diagnostic studies to design research.

Improved household nutrition and health status through this pathway is expected to arise from increased household asset ownership and from reduced incidences of zoonotic diseases as a result of lower incidences of animal diseases. This will require value chain actors to embrace more localized and incentive based regulatory standards. The main program output for this change in practice will be strategies for engaging policy and regulatory bodies; and similarly the research and development activities will center on developing methodologies for efficiently linking farmers' groups to apex bodies including the Tanzania Dairy Forum (DDF) to efficiently lobby for the required policy shifts that can lead to pro-poor dairy value chain development. The main assumptions being are: the poor and smallholders will continue to be prioritized in development programs, government commitments to creating incentives for increased investment in agriculture and the expansion of private sector are sustained, demand for milk continues, research outputs may not be adopted by actors, and key development and advocacy partners remain viable and able to perform their role in the project. The major risk, however, will be the high transaction costs of managing a complex network of partners.

Figure 3: Generation of evidence for impact at scale and policy influence



3.4 Impact pathway 4: Innovative strategies to increase consumption of dairy products

The fourth impact pathway involves the attainment of improved household nutrition and better household health status through lower incidences of zoonotic diseases, increased per capita consumption of dairy products, and increased composition of dairy products mostly in typically poor households' diets (Figure 4). Lower incidence of zoonotic diseases will arise from farmers and traders embracing self-regulation for improved safety of dairy products, mainly as a result of the livestock and fish program influencing the development of efficient localized and incentive based regulatory standards. Program research and development activities will center on linking farmers' groups with apex bodies such Tanzania Dairy Board (TDB).

Increased per capita consumption of dairy products will arise from 3 main changes in behavior and practices. Processors will have to establish contractual relationships with actors in DMHs to enforce standards and ensure stable supply of dairy products, farmers and processors will diversify products, and households will ensure equitable intra-household distribution and sharing of benefits from participating in the value chain. Program outputs will include feasible collective action models for farmers' improved access to inputs and services and efficient milk marketing strategies. The main research and development priorities will be testing and implementing alternative campaign strategies for dairy products, understanding the key drivers of milk consumption in Tanzania, and facilitating farmers' organizations around marketing and, inputs and service bulking. The assumptions via this pathway remain similar to those under previous pathways and they include good coordination of different actors, demand for dairy products continues to grow, government's commitment to creating incentives remains viable and partners are willing and able to perform their roles in the project.

Figure 4: Innovative strategies to increase consumption of dairy products

