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Nepal Flood Recovery Program

Final Report



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ACKNOWLEDGEMENTS

The accomplishments of the USAID Nepal Flood Recovery Program (NFRP) would not have been possible without the hard work of, staff, partners, and stakeholders.

Firstly, it was the vision of the USAID/Nepal mission that made this program possible, and its successes would not have been achieved without the consistent technical guidance and oversight provided by its General Development Office. We would particularly like to extend our gratitude to Shanker Khagi, who worked tirelessly to find solutions to challenges, and to Navin Hada, John Stamm, Bill Patterson, and Stuti Basnyet, all of whom went the extra mile (always) to support the rapid delivery of program products and services. We would also like to acknowledge Ambassador DeLisi who championed this program from day one.

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- *FORWARD, in particular director Netra Sen*
- *MADE*
- *South Consult*
- *City Engineering Consultancy*
- *United Youth Community*
- *Rural Region and Agroforestry Development*
- *Tharu Community Rural Development Fund*
- *Integrated Rural Development Center*
- *Creation of Creative Society*
- *Kushawaha Agrovet Pvt. Ltd.*
- *Seed Entrepreneurs Association of Nepal (SEAN)*
- *Soud Agrovet Center*
- *Federation of Nepal Chamber of Commerce and Industry*
- *Nepal Agricultural Research Council*
- *Ministry of Agriculture Development*

These are the partners that helped USAID-NFRP implement its agriculture, infrastructure, and social inclusion activities, and project achievements are due in no small part to their commitment. Many thanks additionally to *Helen Keller International*, the health and nutrition partner that was so instrumental in USAID-NFRP improving the nutritional status of thousands of young children and mothers, and in training community health volunteers to ensure that number sustainably rises.

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Finally, our biggest thank you to the rural Nepali stakeholders – nearly one million farmers and villagers throughout the Terai that participated in USAID-NFRP trainings, construction projects, farm activities, and community events. Your courage, enthusiasm, and motivation in the face of adversity are truly inspirational, and it was our great privilege to work alongside you to increase economic opportunities and resiliency.



Claire Starkey
Fintrac President



I. EXECUTIVE SUMMARY

The primary goal of the USAID-funded Nepal Flood Recovery Program (USAID-NFRP) was to deliver an efficient and integrated package of quality services, inputs, and training opportunities that directly responded to the immediate rebuilding and income needs of stakeholder clients (beneficiaries) living in flood-affected or food insecure communities. The program was also tasked with strengthening local capacity to manage future physical, economic, or social threats. Initially established in 2008 as a 24-month activity, the program was extended three times, ultimately through October 2012. It had five main components, combined and briefly summarized with illustrative high-level results below.

Throughout the life of the program, USAID-NFRP directly impacted nearly one million Nepalis.

ABOVE: One of USAID-NFRP's main goals was integrating women into the agricultural value chain. This woman in Dadeldhura increased her maize yield through the introduction of good agricultural practices.

COMMERCIAL AGRICULTURE

Among the different livelihood options available to target communities, agriculture is the most dominant and demonstrates the highest potential for rapid increases. One of USAID-NFRP's primary approaches to increasing productivity and incomes was to introduce good agricultural practices to smallholders. These basic technologies and management practices included better-quality seed and other inputs; proper land management; optimized plant spacing; calendarization and crop rotation; integrated pest management; pre and postharvest handling; and improved fertilization

and irrigation practices. Other productivity improvements focused on riverbed farming, the installation of low-cost greenhouses, and early harvest rice. Major accomplishments under this component included:

- Technical assistance provided to **7,536 commercial farmers** and **4,517 home gardeners** on 1,936 hectares of land.
- Net sales over three crop cycles totaled more than **\$9.7 million, a nearly 800 percent increase** (due in large part to the introduction of high-value vegetables).
- Average net sales per farmer per hectare reached **\$3,651**.

INFRASTRUCTURE

Flood controls and river training activities were initiated first under this component to mitigate impact of future floods, while other structures depended on individual communities' stated priorities and local subcontractors' workloads. Counterpart resources to co-finance construction activities were obtained from a number of sources, including local governments, donors, and the local partners and stakeholders themselves. Final results included:

- **132 infrastructure projects completed**, including flood controls, bridges and culverts, road improvements, schools, market sheds and collection centers, and irrigation systems.
- More than **830,000 people** directly benefited from these new or improved constructions.
- **Irrigation of 4,988 hectares** of productive land.
- These projects generated more than **171,000 person-days of employment, injecting more than \$400,000 into local economies**.

NUTRITION AND HYGIENE

Activities under this component focused on increasing community awareness of essential nutrition behaviors; encouraging and improving

basic sanitation practices at the household level; and integrating basic agriculture practices into home gardens to increase access to healthy foods year round. High-level achievements included:

- Nearly **6,000 men, women, and children trained** in enhanced sanitation, nutrition, and hygiene.
- Installed **1,715 improved cooking stoves** and nearly **1,100 low-cost latrines**.
- **Household food security improved by 32 percent**.

ORGANIZATIONAL STRENGTHENING/PROTECTION OF WOMEN & CHILDREN

Strengthening local organizations and community development is a critical driver of sustainable development. Through a Participatory Rural Appraisal (PRA) approach to activities design, and subsequent interventions in youth leadership, disaster management, and protection of women and children, USAID-NFRP promoted robust buy-in from client stakeholders and helped shape future leaders. Major accomplishments included:

- **More than 60 percent of client base in commercial agriculture were women or other marginalized group members**; and 79 percent of client base in health, nutrition, social inclusion activities.
- More than **1,400 adults and 1,450 youths received training** in community and organizational planning and leadership development.
- **Seventy-two youth clubs formed** and assisted in carrying out community service projects in street maintenance, potable water supply, public toilet construction, and culvert construction.
- More than **1,500 people trained in disaster management** and preparedness contingency planning.



2. OVERVIEW

2.1 Project Objectives

The primary goal of this 54-month USAID/Nepal initiative was to provide an integrated response to flood recovery needs and deficiencies in food security for rural communities throughout Nepal. USAID-NFRP achieved this goal by focusing on four objectives:

- Increasing farmer productivity and income.
- Developing small-scale community infrastructure.
- Improving awareness of sanitation, nutrition, and gender and protection issues.
- Strengthening local organizational capacities through increased participation of youths and vulnerable populations.

ABOVE: Parbati Devi and her daughter, Heera, grade their tomato harvest in Dadeldhura. Their 5 x 10 meter greenhouse with a drip irrigation system produces 600 kilograms of high-quality tomatoes per crop, worth roughly \$250 dollars.

2.2 Project Background

Flooding and landslides in 2007 and 2008 caused considerable damage and human suffering throughout the Terai region of Nepal. More than 600,000 people were impacted by lost livelihoods, land, and vital community infrastructure. Food insecurity, malnutrition, and poverty indices were already among the country's highest in many affected communities, particularly in the Mid and Far West regions. Before intervention, an estimated 82 percent of households in program worksites suffered more than six months of food insecurity every year.

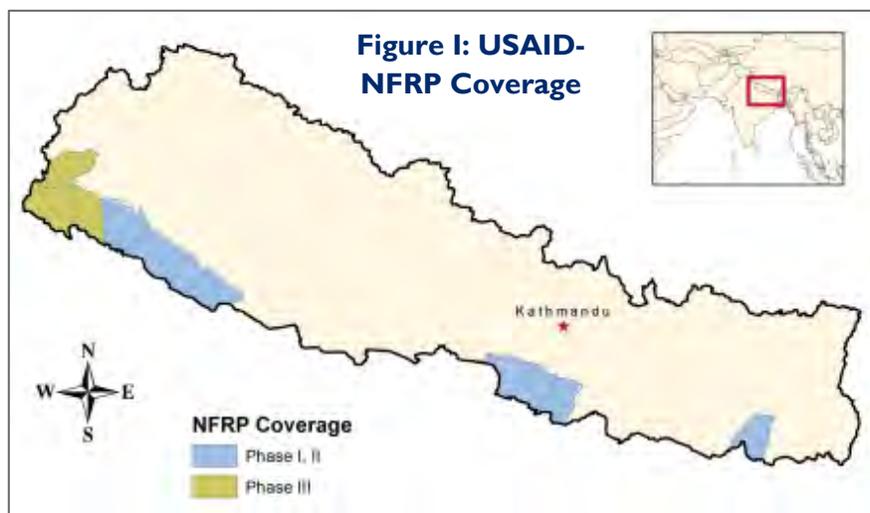
2.2.1 Flood Recovery

USAID-NFRP worked with flood-affected communities to increase farmer productivity and income, rehabilitate and develop small-scale community infrastructure, and improve awareness of sanitation, nutrition, and gender issues. Initially a 24-month activity designed to respond to the 2007 floods in the central and western Terai regions, USAID/Nepal authorized a 10-month extension in October 2009 to expand program operations to regions affected by the 2008 floods, including the well-known Koshi Flood in Sunsari district, which was one of the largest natural disasters in Nepal's history. Activities implemented in the 2007 and 2008 flood-affected districts are referred to as Phase I and Phase II, respectively.

During this period, USAID-NFRP operated in eight districts throughout the Terai: Sunsari in the Eastern region; Parsa, Bara and Rautahat in the Central region; and Kanchanpur, Kailali, Bardiya and Banke in the Mid/Far Western regions. Through a comprehensive process of field assessment, 76 village development committees (VDCs) were selected for program support based on the severity of flood damage and levels of vulnerability. Within each VDC, clusters of communities were prioritized for intervention based on selection criteria that analyzed population, social composition, vulnerability, availability of viable farmland, farmers' willingness to participate in the demonstration farming program, and farmers' commitment to sharing the cost of key productive inputs.

2.2.2 Food Security

In March 2011, recognizing USAID-NFRP's capacity to deliver rapid and high-impact integrated development assistance to rural communities by effectively leveraging local organizations and individuals to carry out program activities, USAID/Nepal extended the



program for an additional 18 months. The second extension period, referred to as Phase III, was designed to further the objectives of the new Feed the Future (FTF) initiative: increasing the availability, access, utilization, and sustainability of nutritious food for families in developing countries. USAID-NFRP was therefore asked to continue its work in the FTF target districts of Kailali and Kanchanpur, and extend to Dadeldhura to increase agriculture productivity and incomes, expand market linkages and trade, develop small-scale productive infrastructure, and improve the nutritional status of households. A total of 28 VDC worksites were targeted for food security support during this phase, including the 12 VDCs from Phase II in Kailali and Kanchanpur. USAID/Nepal granted a final two-month no-cost extension (through October 31, 2012) in June to allow for a smooth closeout and effective transition to future USAID activities that will operate within the same districts.

2.3 High-Level Indicators, Targets, and Achieved Results

All of the activities carried out under USAID-NFRP were directed toward the achievement of the high-level program indicators that included number of direct beneficiaries, construction of community infrastructure, training delivery, temporary employment generation, and leveraging of outside resources to support program activities.

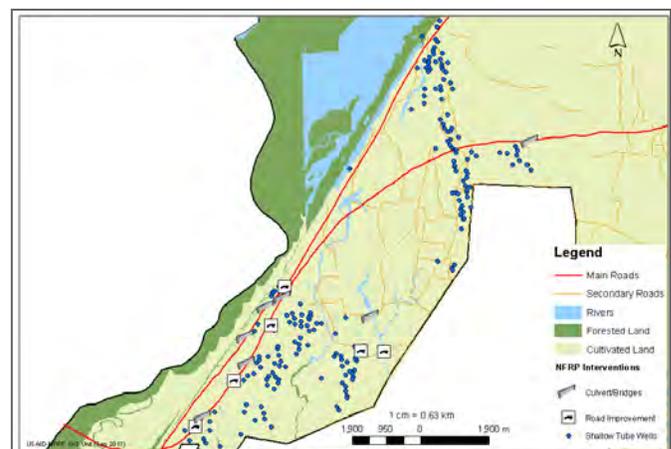
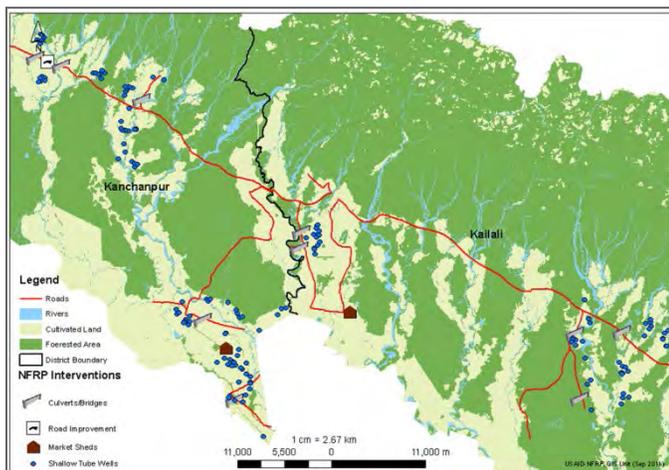
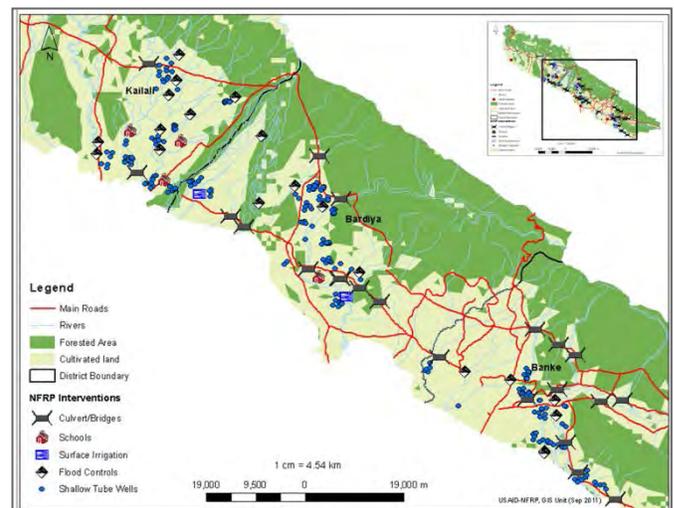
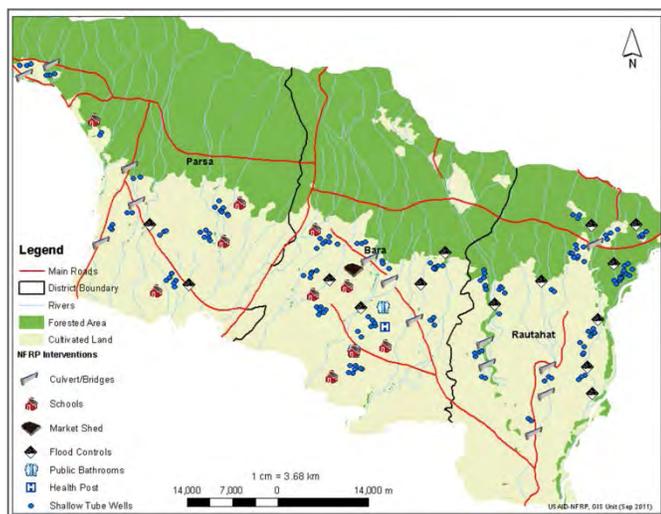
A total of 909,001 people directly benefitted from USAID-NFRP activities. The infrastructure component completed 132 community projects and generated 171,948 days of temporary employment for local residents. Training programs were delivered to 7,536 people in livelihood and income generation; 5,960 in sanitation, hygiene, nutrition and home gardening; 3,275 in youth leadership and community development; and 4,267 in protection of women and children. Total beneficiary investment (cost sharing) in project activities by individuals, communities, local governments, and other donors was \$500,361.

2.4 Approach and Methodology

USAID-NFRP’s approach to flood recovery and food security, and the methodologies applied to each of the program’s five components, evolved under the three, partially overlapping programmatic phases (Phase I: May 2008 to June 2010; Phase II: October 2009 to July 2011; Phase III: March 2011 to October 2012).

A focused target population and diverse set of programmatic components provided the opportunity for a unique, high-impact approach to flood recovery and food security assistance. USAID-NFRP’s priority was to deliver an efficient and integrated package of quality services, inputs, and training opportunities that

Figure 2: Concentration by District in Phases I and II

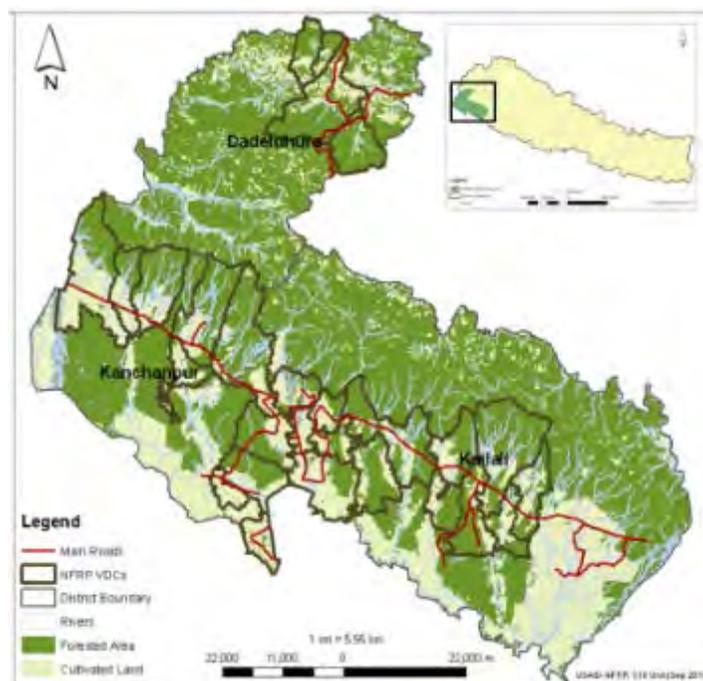


directly responded to the immediate needs of clients (beneficiaries) living in flood-affected or food insecure communities, while also strengthening client capacity to manage future physical, economic, or social threats. By coordinating the different impacts of each component, USAID-NFRP ensured greater complementarity of results, compounding the economic and social benefits to targeted communities.

For example, productive infrastructure support focused heavily on enhancing productivity and trade for client farmers who received assistance from the commercial agriculture component. Simultaneously, capacity and awareness trainings were extended to community members, particularly women and youth, in nutrition, hygiene, self-empowerment, and local development. The improved economic conditions therefore provided a foundation for community members to put into practice their new skills, whether at the household level through better nutrition for newborns, or the VDC level through greater youth and female participation in local planning and decision making. As a result, each component activity achieved higher degrees of sustainability than would have otherwise been possible through the effective coordination of its complementary effects.

A participatory approach was applied to program implementation in order to build community capacity that provided a foundation upon which to coordinate and mobilize interventions. USAID-NFRP staff were responsible for identifying, competitively hiring, and managing local organizations and companies to implement technical assistance, training, and construction activities. Implementing program activities in partnership with these grassroots organizations, many of which are based in or near the targeted VDCs, ensured USAID-NFRP had a constant local presence at each program worksite. This achieved effective interventions from a broader range of community members, provided more opportunities for direct feedback regarding program impact, and built local capacity.

Figure 3: USAID-NFRP VDCs and Municipalities in Phase III



Local commitment demonstrated through community contribution was always strong – primarily due to the grassroots planning process, cost-sharing requirements for program interventions, and an emphasis on using skilled and unskilled labor from target communities. Subcontractors also voluntarily contributed resources to the effort, multiplying the impact of the program’s initial investments. USAID-NFRP leveraged a total of \$500,361 in counterpart contributions from various sources to co-implement program activities. Cost sharing is a proven methodology that jump starts investment in agriculture. Because most subsistence farmers cannot qualify for credit due to their low income potential, program support can provide a vehicle for farmers to access starter kits of seeds and other inputs that will help them rapidly increase incomes and generate more than enough cash to pay for future production. In-kind assistance to farmers was highest during the first crop cycle, generally at 75 percent of the required production package. This assistance decreased significantly by the second cycle and was brought to zero for the third and final cycle. By this time,

farmers had earned enough income to recognize the value and had the necessary working capital to continue purchasing hybrid seeds, fertilizer, and other improved technologies on their own.

USAID-NFRP's approach to the commercial agriculture component, previously termed Livelihoods and Income Generation (LIG) in Phases I and II, was to provide intensive, hands-on training in food production and marketing, and financial assistance to selected small-scale farmers in targeted VDCs for three off-season cropping periods. The program introduced farmers to new technologies and approaches in crop production and postharvest handling, as well as market price information and linkages. At the end of the 18-month intervention, each farmer was able to sustain a farm using this new technology and replicate the model within their communities by using their farms as demonstration sites.



Before this bridge in Udharapur VDC was built, local transportation was frequently cut off during monsoon season, creating major barriers to trade. This bridge benefitted more than 1,700 households and created 3,143 days of temporary employment.

The initial strategy for the infrastructure component was to rehabilitate existing small-scale infrastructure or develop new projects (river protections, flood controls, culverts, schools, bathrooms, roads, and irrigation systems) that were identified by target communities as their highest priority. In Phase II, the component was modified to focus

exclusively on constructing infrastructure that directly complemented the economic development efforts being made by the program's commercial farmers. This approach was also applied in Phase III worksites, although limited funding required greater emphasis on agriculture-specific infrastructure such as irrigation, collection centers, and markets.

Social inclusion and gender equity were crosscutting activities integrated into all USAID-NFRP components. In order to complete this task effectively, USAID-NFRP sought to provide community groups with technical guidance to enable planning and monitoring sensitive to gender, caste, ethnicity, and other important social factors. This included increasing the participation and cooperation of traditionally marginalized groups in decision making and increasing their inclusion in local democratic processes by strengthening good governance, accountability, and transparency at the local level.

Components 3, 4, and 5 are nutrition and hygiene; strengthening of local organizations; and protection of women and children, respectively. All were implemented by local partner NGOs that carried out capacity building and awareness training activities designed and managed by USAID-NFRP technical staff.

2.5 Partnerships with NGOs and Private Enterprises

In order to achieve quick and sustainable impacts, USAID-NFRP applied an implementation strategy that facilitated strong coordination and established lasting partnerships with all important stakeholders related to flood recovery and food security. Key government counterparts included the village development committees (VDCs), district development committees (DDCs), district agriculture development offices (DADOs), district irrigation offices (DIOs), and public health offices. Private sector counterparts varied widely from national-level associations (Agro-Enterprise Center, Seed Entrepreneurs Association, Agro-Vet and Pesticide Associations) to district and VDC-

level enterprises such as wholesale market dealers, traders, input suppliers, and other relevant service providers. Close programmatic coordination was maintained with the various NGO projects and donors operating in the program districts thus avoiding overlap and ensuring greater complementarity. Financial and in-kind resources were often leveraged from these organizations to further USAID-NFRP's objectives. Program field staff also participated regularly in DDC and VDC planning meetings, as well as in donor coordination forums such as the Agriculture Alliance, the Food Security Network, and the United Nations Alliance.

USAID-NFRP was implemented with a diverse group of local partners. By program completion, a total of 187 subcontracts were issued to 14 NGOs and 37 private contractors, all of which were district-level entities that demonstrated strong ties with local communities, with the exceptions of METCON Consultants and FORWARD, two larger subcontractors with national coverage.

2.6 Mainstreaming of Gender, Youth, and Vulnerable Populations

USAID-NFRP emphasized the importance of broad community participation from all gender,

ethnic and caste groups. By ensuring women and marginalized groups had an equal voice during project selection, design, and implementation, USAID-NFRP was able to deliver interventions that were appropriate to the needs of the diverse constituencies within rural Nepali communities. Empowering women and vulnerable groups with equitable access to training, production, markets, and income opportunities ensured entry into productive value chains that possess strong growth potential. The program's social component, designed to address many of the factors that cause discrimination and marginalization, complemented the economic development efforts by allowing for broader outreach to households that could not directly benefit from improvements in commercial agriculture (i.e. landless).

Sixty-two percent of all commercial agriculture clients were from vulnerable groups and 36 percent were women with demonstrated leadership roles in their families and communities. In addition, 79 percent of all participants in the three social inclusion components were women.

Table 1: Progress on Overall Program Indicators

Indicator/Activity	Target	Achieved to Date	Balance	Completion Rate
Number of direct beneficiaries of USG-funded interventions	955,867	909,001	46,867	95%
Number of community infrastructure projects constructed or rehabilitated	144	132	12	92%
Number of individuals who have received USG supported training (all components)	20,578	21,038	(544)	102%
Number of person-days of temporary employment generated by infrastructure activities	178,736	171,948	6,788	96%
Cost sharing leveraged by individuals, communities, local governments, and other donors	\$480,843	\$500,361	(\$19,518)	104%



3. KEY ACTIVITIES

Flood Recovery – Phases I and II

With limited resources and a potentially large geographic area to work in, it was essential that USAID-NFRP first identified the communities most affected by the 2007 and 2008 floods. From the beginning, it was apparent that many areas of the Terai were prone to seasonal flooding, and the degrees of damage from one community to the next varied widely. Assistance could not be generalized to a district or even VDC as many areas within their borders were virtually unaffected. Generally, the communities most affected were those with the highest hydrological susceptibility to floods, and this rarely constituted more than three to four wards per VDC (from a total of nine). USAID-NFRP therefore designated this cluster of flood-affected wards as the “VDC worksite” and extended its programmatic support exclusively to those areas.

ABOVE: The high productivity achieved by USAID-NFRP resulted in substantial incomes and the demand for on-farm labor, directly benefitting rural small-scale farmers such as this woman.

During these two phases, the program worked in a total of 8 districts, 76 VDCs, and 281 wards, with a target population of 22,000 households. Within each VDC worksite, the core principles applied across all program components included:

- Providing similar levels of financial and technical assistance to each worksite.
- Engaging maximum range of groups within each worksite, including women, youth and community development organizations, local NGOs, civil society organizations, and private enterprises.

- Strengthening local capacity at all levels relevant to flood-affected communities.

Food Security – Phase III

The 18-month, Phase III extension required that all new program activities directly supported USAID’s emerging Feed the Future initiative in Nepal. The general objective was to improve the affordability, accessibility, availability, and utilization of nutritious food to rural households by integrating the complementary impacts of commercial agriculture, nutrition and hygiene, and productive infrastructure. The multifaceted causes of poverty, food insecurity, and malnutrition could not be addressed without dynamic and focused approaches that recognized the interrelationships (and disconnects) between income generation, food productivity, and consumption. Improved agricultural productivity and commercialization could dramatically increase incomes, but complementary investments in other sectors were also required to sustain impacts and address food security priorities.

3.1 Commercial Agriculture

Given its limited timeframe, the commercial agriculture component required the capacity to produce immediate and sustainable results that could significantly raise the incomes of flood-affected and food insecure households. Without dramatic increases in economic productivity, many households would not achieve gains sufficient to cover their basic needs; invest in

growth; or provide the resilience needed to withstand future shocks, such as natural disasters and food shortages. High growth is also required to compete with the prevailing trend of working-age men emigrating for often exploitative work to nearby countries. Among the different livelihood options available to target communities, agriculture was the most dominant and demonstrated the highest potential for rapid increases in productivity.

The program applied practical approaches that increased farmers’ output of quality products, net sales, and incomes by imparting skills in managing the production and marketing of high-value crops (HVC) for increased incomes. Farmers gained medium-term support by receiving quality seeds, nursery supplies, integrated pest management kits, and irrigation sets while participating in an 18-month on-farm training program that worked to enhance their capacity in good agricultural practices (GAP) for HVC production, nursery and integrated pest management, compost production, pre and postharvest handling, marketing and commercialization.

Program activities were implemented over three crop cycles with farmers that qualified for support (based their livelihood indices) and demonstrated keen interest in adoption of HVC production and serving as demonstration farmers to their communities. HVC demonstration plots were established on eight to 40 hectares of land per VDC worksite. Plots

FARMER PROFILE

Phulmati Rana and her husband have dramatically increased their incomes by integrating high-value vegetable crops into their production. The family earned nearly \$2,000 from one crop cycle. Rana was able to pay of her debts, purchase needed household goods, and invest in her children’s schooling. Thanks to the extra income, Rana’s husband no longer has to emigrate to India in search of difficult and low-paying employment.



were required to be a minimum of 0.2 hectares to ensure economic viability. The maximum size was set to 0.5 hectares, as landholdings larger than this would indicate that the household was comparatively better off than its neighbors. Thirty-one percent of all participating farmers were between the ages of 18 and 29, and 36 percent were 30 to 40 years of age. Seventy-seven percent were from indigenous groups, 19 percent from other castes, and 4 percent Dalit.

Field technicians were trained in Fintrac's methodology for smallholder horticulture development and in the social mobilization skills needed to engage Terai farmers and ensure their full participation throughout the 18-month program. The concept of setting program targets on a pre-determined number of hectares (land-based model) with support in training and inputs such as irrigation, nurseries, seeds, and IPM kits was as new to many technicians as it was to farmers in the region and required reinforcement.

Field technicians lived in VDC worksites to ensure regular contact and availability to beneficiary farmers. In addition to scheduled trainings, regular monitoring and informal technical assistance was provided to farmers during weekly visits to troubleshoot specific issues and help develop confidence as the farmers become more familiar with new production practices. Field technicians also worked with local buyers, transporters, and agro-vet suppliers to improve their formal business relationships with beneficiaries. Near the end of each crop cycle, a one-day field day was held in each VDC where participant farmers and other local actors shared their experiences and discussed their plans and expectations for the next cycle. USAID-NFRP's technical specialists and field agronomists travelled daily throughout program VDCs to provide management support to the field technicians and ongoing technical assistance to beneficiary farmers, agro-vets, traders, and market agents.

USAID-NFRP conducted extensive research to verify that the commodities promoted by the program had robust domestic markets with

growing demand. Most crops selected directly substituted imports from India and therefore continued to be high demand within Nepali markets, thus ensuring the sustainability of farmers' returns.

The commercial agriculture program emphasized enhancing farmers' technical knowledge, access to services, and increasing agricultural productivity as the key interventions required to improve rural incomes. This did not, however, preclude the importance of intelligent planning and the marketing skills that allow farmers to become more engaged players within their particular value chains. Farmers learned basic analytical skills and how to apply them in practical situations, thus enhancing their ability to make effective and strategic decisions for future crop cycles. Trainings included visits to local and regional markets to link with buyers and middlemen; analysis of production costs, price fixation, production timing, and calendarization; mapping of accessible wholesale and export markets; and establishing grassroots market information systems.

Farmers were organized into a total of 825 irrigation groups, each ranging from five to 15 farmers. Group members worked together to plan future production and apply best practices, including proper nursery management, irrigation system operation and maintenance, bulk purchasing of inputs, and marketing products. Participatory irrigation management plans were developed for all irrigation groups outlining the sustainable use and delivery of the improved irrigation sets. Most groups reported a full recovery of their 25 to 40 percent counterpart contributions by leasing irrigation services to neighboring farmers not directly supported by the program. In this manner, the irrigation sets became their own small businesses and greatly increased access to irrigation resources within targeted communities, further promoting the diffusion effect and long-term sustainability of improved production.

Irrigation clusters were organized into production groups with a range of three to 11 clusters per group, depending largely on the population densities of program worksites.



A commercial farmer from Kanchanpur district diverts irrigation water supplied by his shallow tube well from one plot to another. Year-round access to water is critical to improving yields and incomes.

Production groups were encouraged to collaborate for marketing purposes, as their increased collective volumes of production served to draw traders into their communities. However, effective marketing requires good planning and recognizing regional and temporal market opportunities. Program agronomists and field technicians fostered that process by providing targeted training and technical assistance to production groups, traders, and other value chain actors. Coordination within the production groups strengthened as farmers (and other traders and agro-vets) realized the impressive gains they could achieve.

Impacts on household incomes were assessed by understanding the improved economic productivity of farmers' main productive asset: their land. By comparing the net sales (i.e. gross sales less the cost of production) farmers achieved during the program against what they were earning prior to assistance, USAID-NFRP determined the percent increase in their land's economic productivity (net sales per unit area of land). This allowed the program to set standards and targets for what its agricultural assistance activities could optimally achieve. It also provided proxy information on the specific effects that income generation through

commercial agriculture has on annual household incomes.

Representatives of various local and regional government agencies (including the district agricultural development offices and the Agricultural Regional Directorate) frequently joined the USAID-NFRP team in delivering training to staff and other stakeholders, and in coordinating wider capacity building events in their districts, covering essential topics such as:

- Economic and food security impacts of high-value crops.
- High-value crop production technologies and cultivation practices.
- Regional agricultural prospects and challenges in program worksites.
- Engaging key stakeholders: government agencies, private-sector organizations, civil society, and farmer associations.
- Crop selection based on farmers' analysis of market opportunities, climatic trends, location, and productive input requirements.
- Plant protection and integrated pest management including environmental considerations and health standards.
- Nursery technologies, transplanting, crop production plans, compost, fertilizer, and plant micro-nutrients, pre and postharvest management.
- Installation, construction, operation, and maintenance of groundwater and surface irrigation systems.
- Strengthening linkages with input service providers, traders, middlemen, and wholesalers.

3.2 Infrastructure

USAID-NFRP's rapid implementation of high-quality infrastructure projects was the result of strong community mobilization and an effective selection and management system for local subcontractors that capitalized on each of their unique capacities. Through extensive short-

listing of district-based subcontractors (firms and nonprofit organizations), USAID-NFRP selected organizations that had established relationships with community leaders and labor sources. Subcontractors were able to quickly mobilize community participation and contribution of counterpart resources for infrastructure projects selected during the appraisal process. Thus, the infrastructure component served as an effective rallying point from which to encourage broad participation by communities, which in turn generated stronger interest and support for USAID-NFRP's four other component activities.

Although project selection was primarily driven by the participatory process conducted with communities, greater consideration was given in Phase I to projects that provided direct benefits to flood victims and could reduce the impacts of future floods. This resulted in many projects being related to flood control and transportation improvement. Requests for school construction or repair were also common as they had the additional benefit of serving as community shelters during natural disasters.

Initially, the program assumed it would allocate the infrastructure component's financial resources evenly among its VDC worksites.



This culvert, built with USAID-NFRP support in Rautahat, helped increase local trade and improve market access. This project created 1,224 days of short-term employment and benefitted more than 1,000 households.

Later, as projects were developed and communities' real infrastructural needs were better assessed, it was decided that each VDC would receive a minimum of one key project and the remaining funds would be used to support larger, high-impact projects that served to link target VDCs with markets and wider transportation networks.

USAID-NFRP took a strategic approach to project design and logistics management to avoid local disruptions. Flood controls and river training projects were initiated first, as they had to be finished before the next season's monsoon rains. Bridges, schools, and other structures began several months later, based on subcontractor's workload. By spreading the workload fairly and according to comprehensive implementation schedules, subcontractors competently managed their overall commitments. USAID-NFRP staff also facilitated exchanges among subcontractors that allowed expert staff in particular technologies to train other organizations and spread those technologies to new areas.

Local strikes (*bandhas*) and political unrest presented serious risks to project timetables. In order to avoid delays and increased prices, labor scarcity, or impediments to transporting construction materials, subcontractors were instructed to purchase and deliver all materials and supplies to worksites at the beginning of projects. If *bandhas* occurred later, work could continue as laborers and foremen could still reach worksites relatively easily and all supplies were onsite. Skilled and unskilled labor was recruited directly from beneficiary communities, ensuring their availability despite the *bandhas* and other disturbances.

Counterpart resources to co-finance construction activities were obtained from a number of sources including beneficiary communities, VDC governments, partner subcontractors, ADRA, WFP, and UNDP. In order to ensure effective financial collaboration with the government, measures were taken when VDCs made firm commitments to co-finance projects. Once VDCs committed to specific cost-share amounts during

subcontracting, USAID-NFRP took on full financial responsibility with subcontractors and managed the VDC's contribution separately. This was to ensure contractual conditions were met and allowed USAID-NFRP to complete projects on time regardless of whether VDCs met their cost-share commitments. When VDCs met their obligations, shares were deposited to the project bank account and used to pay for their portion of the project.

Field engineers regularly visited completed projects to assess their structural integrity and address any issues. In the three cases where projects suffered damages due to monsoon flooding or other unforeseen problems, USAID-NFRP provided additional resources to restore the projects to their originally-designed state. Field engineers also provided ongoing technical assistance to community user groups, providing them with the skills necessary to carry out routine maintenance and repairs.

Upon the conclusion of each project, subcontractors completed technical and financial reports that detailed the final outcomes, including construction expenditures, implementation challenges, community contributions, local employment, and number of beneficiaries. Communities also submitted two documents that served in part to validate results of each project. The first was a letter of appreciation from the VDC secretary as the responsible government counterpart. The second was a letter from the community user group that recognized the official handover of the project to the community. This documentation was not only an effective method for formalizing project handover; it also provided documented evidence of community satisfaction with the project.

Local governments and civil society took note of the quality and effectiveness of USAID-NFRP's infrastructure program. Program field offices received letters from CDOs, LDOs, and VDC secretaries recognizing the program's high standards and requesting additional projects in their districts. Many neighboring communities also approached staff and subcontractors to solicit similar support.

3.3 Nutrition and Hygiene

The objectives of this component were to carry out awareness and promotional activities that:

- Increased community awareness and application of essential nutrition actions through effective targeting at the household level.
- Provided innovative, practical ways to improve environmental sanitation.
- Encouraged healthy sanitary practices.
- Promoted awareness regarding health hazards caused by smoke inhalation.
- Created awareness to improve the way existing water sources are handled, protected, and treated.

The component was disaggregated into three subcomponents: technical assistance and training in improved nutrition, sanitation, and hygiene; establishment and training in the management of model demonstration home gardens; and installation and training in the proper use of improved cooking stoves. Program awareness interventions were integrated with livelihood activities to ensure greater impact and immediate application of the skills learned.

Community-based trainings: After completion of a thorough training of trainers process with local female community health volunteers (FCHV), a minimum of 50 beneficiaries from each VDC worksite were selected to participate in the 12 to 14 month program. Special targeting was made for households with pregnant women or children less than 2 years of age, recognizing that the first 1,000 days of life are the most critical period for human physical and cognitive development.

The main topics covered by the awareness training program include:

- *Nutrition:* nutritional values of foods; importance of consuming green vegetables; internal household food distribution; cooking methods; and the seven essential



Maya Chaudhary feeds her child after attending a program-sponsored nutrition training. Beneficiaries learned healthy food production and preparation techniques. Food security of client households improved by 32 percent over the life of the program.

nutrition actions, including breastfeeding, complementary feeding, feeding during illness, women's nutrition, controlling anemia, vitamin A, and iodine deficiency disorders.

- *Health and Hygiene*: hand washing; personal hygiene; food and water preparation; water and fecal-borne diseases; and cooking practices and their effects on health (e.g. lung disease caused by smoke inhalation).
- *Environmental Sanitation*: maintaining healthy, sanitary living condition; hazards caused by open defecation; and solid waste and wastewater management.

USAID-NFRP received the assistance of Helen Keller International (HKI) in developing its

Phase III training program and syllabus for the nutrition and hygiene program. The subjects covered by the training included:

- Program policies, objectives, approach, and methodologies.
- Essential nutrition actions in the context of infant and young child feeding (IYCF) practices including breastfeeding and complementary feeding.
- Facilitating the formation and mobilization of IYCF support groups.
- Women's nutrition in different stages of the lifecycle.
- Home gardening covering summer and winter crop selection, their nutritional value, nursery management, transplanting, production, and utilizing products to improve nutrition.
- Counseling and negotiation skills to promote behavior change to improve IYCF and women's nutrition.
- Behavior change communication through the stages of behavior change.
- Listening and learning counseling skills – ALIDRAA steps.
- Monitoring, reporting, and outreach.

USAID-NFRP developed its nutrition and hygiene training syllabus, manual, and educational materials in coordination with HKI. A second manual with new educational materials was also developed for the commercial agriculture participants that focused on more general household-level nutrition and hygiene issues and includes an additional component termed "household economics" that serves to bridge the gap between increased family incomes and greater awareness of nutritional priorities.

Home Gardens: To reduce malnutrition rates and to provide families, particularly women and children, with foods high in nutritional value, USAID-NFRP included home gardening activities in the nutrition and health component. The goal of the home gardens was to improve

the nutritional and health conditions of children and adults through consumption of self-produced, nutritious foods. By installing home gardens, trainees acquired valuable knowledge of the importance of healthy foods, their impact on human development, and the relevance of environmental conservation. USAID-NFRP supported families with home gardens over two crop cycles to improve nutrition rates and gradually encouraged them to start semi-commercial production. The components included perennial vegetable crops with multi-harvesting potential and climber crops that require less land area and produce shorter duration fruit-bearing plants.

The home garden activity was implemented in collaboration with households that owned at least one kattha of land (333 square meters) and demonstrated strong interest in the production of nutritious vegetables, their consumption, and potential sale to local markets. Community trainers provided regular follow-up visits and on-site trainings to ensure group members were properly applying the skills they learned. Commercial agriculture

technicians also coordinated local agro-vets in these worksites to increase service provision to program-supported home gardeners and women's groups.

Improved Cooking Stoves: The rural population of Nepal relies heavily on biomass (i.e. fuel wood, agricultural residues, forest weeds, and cattle dung) to meet domestic energy demands. Fuel wood supplies nearly 76 percent of the total energy requirements of the country, the remaining 10 percent being supplied by agricultural residue and animal waste. The use of low-grade biomass fuels in traditional stoves leads to over consumption of the fuels and excessive levels of indoor air pollution causing familial respiratory problems. Improved cooking stoves (ICS) increase efficiency and reduce the overall consumption of fuel woods.

The objective of this activity was to increase awareness about health hazards caused by smoke inhalation and to promote environmental conservation through the regular use of ICSs, a cost-effective and fuel efficient technology that is proven to fulfill the energy needs of rural communities.

3.4 Strengthening Local Organizations

In response to the government of Nepal's 2008 announcement that it will reinvigorate Local Peace Committees (LPCs) throughout the country's 75 districts, USAID-NFRP held a number of coordination and information-gathering meetings with key stakeholders at national and local levels. The team assessed that there would be substantial delays in the effective implementation of LPCs throughout Nepal, and especially in program districts, and indeed there were. As a result, USAID-NFRP developed a strategy for this component that enabled it to effectively address institutional and organizational needs at the community level while maintaining the flexibility to adapt to any future political changes that could affect the program. Additionally, a strategy for local flood preparedness and mitigation was developed to



Nutritious vegetables grown in home gardens help reduce malnutrition and improve overall health, especially among young children.

enhance the component's responsiveness to the highest priorities of beneficiary communities.

Community Development: This sub-component's objective was to strengthen the organizational, planning, leadership, and conflict resolution skills of socially active and responsible members of communities to enhance their capacity to direct and sustain the long-term development. In all cases, preference for beneficiary selection was given to socially and economically diverse leaders and active community members.

Community-based organizations served as the focal point for trainings, meetings, and other activities. Fourteen days of comprehensive, "learning-by-doing" trainings were conducted over a 12-month period to each member in the following subjects:

- *Community Management:* values, ethics, and rights; community mobilization and organization; participation and good governance; leadership and conflict resolution.
- *Community Development:* needs identification and prioritization; project planning and design; coordination and resource leveraging; project implementation and monitoring; organizational operation, maintenance, and sustainability.

Youth Leadership: This program's goal was to enhance the leadership, communications, and networking skills of local youths that demonstrated a keen interest and commitment to serving as long-term "change agents" within their communities. In all cases, preference for beneficiary selection was given to established future leaders and socially-active youths.

Youth clubs served as the focal point for trainings, meetings, and other activities. Fourteen days of comprehensive, "learning-by-doing" trainings were conducted over a 12-month period to each member. The contents of the training program were similar to the community-based organization syllabus, although adjustments were made to address the



The program encouraged public participation and local support in all worksites. Here community members work together to construct flood control.

specific conditions and challenges faced by youth:

- *Values:* self-awareness and self-esteem; ethics and rights; individual and collective responsibility.
- *Communication:* self-expression; supportive peer relationships; public speaking.
- *Leadership:* problem solving and analysis; decision making; negotiation and conflict resolution; proactive community involvement.

Youth club members developed skills in project planning, proposal preparation, and development that culminated in the design and execution of project-supported community service projects. Projects varied in size, scope, and subject and were intended to allow trainees to put into practice the new communicational

and leadership skills developed by program beneficiaries.

Regional three-day workshops were conducted for club members from all program districts as an opportunity for youths from different communities to share and learn from each other's experiences. Additional three-day workshops were held within districts for both youth club and community-based organization members to share experiences. Stronger relationships and mutual respect between young and adult community leaders were developed as a result of these engagements.

Disaster Management: The activity focused on developing and implementing disaster mitigation and preparedness contingency plans for each USAID-NFRP community to support effective responses to future floods and other natural disasters. Four days of hands-on training were delivered to the full membership of each CBO covering the major issues related to disaster management, mitigation, and preparedness. By the end, each CBO developed a comprehensive and practical contingency plan that would allow it to efficiently manage future disasters. Each community organization received basic first aid, communications, and search and rescue supplies to support their efforts.

3.5 Protection of Women and Children

The objectives of the protection of women and children component were to carry out awareness and promotional activities that:

- Provided innovative, practical applications for communities to raise awareness on gender-based vulnerabilities, human trafficking, and gender equity.
- Increased communities' awareness on the consequences of human trafficking and socially discriminatory practices that affect youth, women, and men.
- Strengthened the capacity of local groups to prevent and manage gender-related violence.



Strengthened capacity of local woman's groups was a key component of USAID-NFRP's approach to protection of women and children.

The component was disaggregated into two training and technical assistance subcomponents:

- *Better Life Options Program (BLOP):* Awareness-raising for the protection and empowerment of adolescents girls (youth) and young women on trafficking issues, human rights, gender equity, and other discriminatory social practices.
- *Regenerated Frerian Learning & Empowering Community Technique (REFLECT):* Awareness-raising to reduce gender-based vulnerabilities for women and men.

BLOP Centers and Training: BLOP is a program developed by the Center for Development and Population Activities that brings together ideas and activities to help adolescent girls and young women shape their own lives and create their own options. The program is committed to addressing the special needs of adolescent girls and young women and developing practical solutions. BLOP centers were established in each of the 72 VDC worksites. Training of trainers sessions were conducted to train women facilitators from

each community to manage the centers and identify potential candidates to participate in the 10-month program. Within each VDC worksite, a minimum of 20 adolescent girls was selected, receiving a total of nine full days of training divided in weekly sessions over the 10 months. USAID-NFRP also provided modest financial assistance to each center to procure necessary furniture, supplies, publications, and training materials.

REFLECT: This activity trained adult community members and parents of trainees on gender concepts, facilitation skills, interaction skills, questioning, synthesizing, analysis, and participatory learning. Gender equity and gender-based violence were discussed in detail in during training sessions. As specific issues and priorities for each community were identified, participants developed individual commitments and community-level action plans to reduce gender-based violence. The training activity was directed at raising awareness in:

- Gender-based violence and reducing violence against women.
- Wage discrimination, gender equality, and developing common understandings.
- Human trafficking, sexual exploitation, and abuse.
- Personal and organizational commitments to gender-based development processes.
- Valuing women's reproductive roles.
- Advocacy for women's rights in the changing socio-political context.

Two-day gender parity workshops were also conducted in each worksite with the objective of sensitizing local leaders, school teachers, and community leaders on gender-related issues.



4. ACHIEVEMENTS

4.1 Farmer Productivity and Incomes Increased

4.1.1 Adoption of improved agricultural technologies increased

USAID-NFRP provided technical assistance and appropriate technologies to a total of 7,536 commercial farmers and 4,517 home gardeners on 1,936 hectares of demonstration plots in 92 VDC worksites. The program's original target for demonstration plots was 1,720 hectares; however farmers expanded the total area by additional 13 percent using their own financial and physical resources. In all phases, farmers completed six all-day field trainings, attended one interactive field day, and received a minimum of 20 monitoring visits from field technicians for each of the three crop cycles.

Good agricultural practices: Important new technologies and management practices introduced to farmers included:

ABOVE: A bustling market serves as a gathering place for rural Nepalis, where they can sell their surplus goods and access important inputs they need to expand production of high-value crops. These market sheds were constructed with USAID-NFRP assistance.

- Raising quality hybrid seed varieties in plastic tunnel nurseries; solarization of nursery beds with plastic sheets.
- Group management of irrigation sets; cost recovery and maintenance; selling irrigation services to neighboring farmers.
- Proper land preparation: deep plowing, fine till, land sanitation, compost feeding.
- Optimizing space with line sowing, raised-bed transplanting, and intercropping.
- Calendarization and timely crop rotation of off-season, market-oriented vegetable production.

- Trellising systems to maximize productive output of available land.
- Safe methods for pest control and plant disease prevention; proper use and application of organic and inorganic pesticides.
- Proper application of manure, compost, and micronutrients.
- Cost-benefit analyses; determining production costs; selecting optimal commodities.
- Pre and postharvest handling; manual grading and packing to reduce perishing.
- Diffusion of new technologies and expansion of irrigation supply to non-beneficiary farmers.

Riverbed farming: USAID-NFRP supported the promotion of riverbed farming for farmers with access to cultivable riverbed areas that would otherwise lay fallow during the dry winter season. Often these same farmers' lands, due to their proximity to rivers, are affected year after year by the constant meandering of waterways during the monsoon season. This damages local infrastructure, erodes fertile lands, and creates a greater burden for already impoverished households. Riverbed farming, which focuses on crops such as cucurbits that thrive in sandy soils, offers a real economic solution to this dilemma.

The cost of cucurbit production under riverbed farming is similar to the cost for standard plots. However, when considering gross and net sales per hectare, riverbed cultivation is significantly

more profitable (\$3,713 in net sales for riverbed farming versus \$2,333 for standard plots). This is due to the lighter, sandy soils that allow for better drainage and much deeper, more extensive root systems that increase the plant's water efficiency, access to nutrients, and productivity.

A total of 36 hectares of riverbed cultivation were established by farmers who were previously assisted by USAID-NFRP on 18 hectares of standard demonstration plots. By their own initiative and with encouragement and training from program staff, farmers expanded an additional 36 hectares under riverbed production; bringing the total area to 54 hectares, or a 200 percent increase in land under production for these farmers.

Plastic greenhouses: The best way to obtain high prices for vegetable production in the Hills region is to grow high-value crops when no one else can, and low-cost plastic greenhouses make this possible. USAID-NFRP supported the installation of 14 throughout Dadeldhura district. Greenhouses were used to raise vegetable seedlings and produce high-quality tomato, cucumber, and lettuce crops that sold for high market prices during the monsoon and winter off-seasons. A small 50-meter plastic greenhouse can produce up to 700 kilograms of tomatoes in a 120-day period, earning \$250 in net sales.

Early harvest rice: Although USAID-NFRP primarily supported the promotion of high-value vegetables, a certain degree of cereal crop

Table 2: Farmers Using Technologies Before and After NFRP (%)

Technology Type	Phase I			Phase II		
	Before	After	Adoption Rate	Before	After	Adoption Rate
Hybrid Seed	12	97	85	0	100	100
Raised Bed	5	100	95	0	100	100
Staking	27	93	67	15	100	85
Weeding and Hoeing	83	100	17	50	100	50
Fertilizer/Manure/Micronutrient	83	100	17	27	100	73
Pesticides/IPM	18	95	77	2	100	98
Postharvest Handling	5	97	92	3	100	97

production was also included to ensure responsiveness to farmer situations. Many farmers, especially those in the Terai, are not able to produce vegetables during the monsoon season as the flooding and water logging only permits rice paddy production. USAID-NFRP used this reality as an opportunity to grow early-harvest rice varieties that allowed farmers to bring their product to market before the traditional rice season (when prices are high) and subsequently grow vegetables during the late monsoon season.

Diffusion effect: Based on assessments conducted on Phases I and II, farmers increased their land under HVC production by an average of 20 percent without additional assistance from the program. Another 1,538 unassisted farmers on 183 hectares of land also adopted the practices and technologies of their neighbors and are now producing high-value crops. The collective diffusion effect of all three 18-month phases is estimated at more than 550 new hectares under HVC production.

4.1.2 Production and sales of high value crops increased

Final results showed that farmers generated nearly \$10 million in income over the three program-assisted crop cycles. This translated into a nearly eightfold increase in the economic productivity of farmers' land compared to traditional production, represented by a 780 percent increase in net sales per hectare. The trend with farmers was continued increases in productivity over each progressive crop cycle. Farmers contributed an average of 0.24 hectares to the demonstration program and their average earned income during the 18 months was \$1,299 – income levels from agriculture that most farmers could have never imagined before working with USAID-NFRP. The average annual net sales per hectare were \$3,651. Compared to the already impressive results achieved in Phases I and II (\$3,345 and \$3,017 net sales per hectare, respectively), Phase III's efforts raised economic productivity by an additional 32 percent. This enhancement in the program's impact (measured in terms of income per farmer and per hectare)



Sapana Bhattari converted her fields from cereal production to high-value vegetables such as eggplant. USAID-NFRP trained her in improved technologies and helped install an irrigation scheme to improve yields.

demonstrated USAID-NFRP's ability to adapt to new conditions and learn from past experiences in order to strengthen its overall effectiveness.

Of the commodities promoted by USAID-NFRP, capsicum yielded the highest average net sales per hectare per crop cycle (\$7,166), followed by potato (\$5,336), garlic (\$5,010), tomato (\$4,017), pumpkin (\$3,397), and cucumber (\$3,191).

In all three phases, the significant gains made in the first and second crop cycles were overshadowed by the outstanding results of the third as farmers continued to scale up productivity despite receiving no or minimal cost-shared inputs from USAID-NFRP. This was a built-in requirement to test the sustainability of the intervention by demonstrating that

farmers have earned enough capital in the first two cycles to not require further financial assistance in order to sustain their productivity. The impressive results can be attributed to three key factors:

- Reliable, year round irrigation – shallow tube wells with motorized pumps.
- Consolidation of commodities to achieve the highest net returns on commodities with the greatest potential in local markets.
- Effective crop planning – after two cycles of trial and error, farmers adjusted production accordingly and achieved profits in the third cycle that were substantially higher than before.

Special case: Although the overall results for the program were strong and exceeded expectations, the final outcome of Koshi flood-affected farmers in the third crop cycle in Sunsari was disappointing. Although Sunsari farmers continued to maintain higher levels of production, both in yields and net sales, they substantially dropped from what had been achieved in the second crop cycle. This shift in farmers' commitment can be explained by the following:

- Continued high dependency on government and donor-led assistance in the flood-affected area caused farmers to be reluctant in showing any progress that might imply they are in better conditions than their neighbors. Often, limited farm production was the best way to demonstrate a continued “need” for assistance. In a number of cases, farmers rejected the cost-shared inputs provided by the program in the third crop cycle, despite their understanding of the obvious economic benefits.
- Indiscriminant distribution of cereal seed crops by the FAO, ADB, and Department of Agriculture resulted in many farmers (more than 30 percent in the third crop cycle) rejecting the option of paying for vegetable seeds, despite the superior economic returns. Production of cereals versus the high-value crops promoted by USAID-NFRP will dramatically reduce the overall returns to farmers.
- Post-disaster mentality causes farmers to be extremely risk adverse. It was confirmed during field interviews that farmers will intuitively elect essential staple crops such as rice and maize over vegetables that

Table 3: Results of Commercial Agriculture program

No.	Indicator/Activity	Phase I	Phase II	Phase III	TOTAL
1	Long-term participants over three crop cycles (18-months)	2,164	2,271	3,101	7,536
2	Hectares of productive land directly assisted	479	487	821	1,787
3	Shallow tube wells and motorized pumps installed	362	324	134	820
4	Treadle pumps installed	240	0	0	240
5	Hectares assisted by gravity-fed irrigation support	17	0	41	58
6	Net sales (gross sales less cost of production) for participants over three crop cycles	\$2,403,738	\$2,203,881	\$5,178,079	\$9,785,698
7	Percentage increase in net sales per hectare of land compared to traditional production	686%	645%	899%	780%
8	Average net sales per farmer in 18 months	\$1,111	\$970	\$1,670	\$1,299
9	Average annual net sales per hectare	\$3,345	\$3,017	\$4,205	\$3,651

require more advanced marketing capacity.

- High levels of sand deposits on crops due to heavy winds, damage to roads and fields, and waterlogging inhibited production and access to inputs and services.

4.1.3 Rural household incomes increased and livelihoods improved

Increased incomes: On average, household incomes in Phases I and II increased by 320 percent. One hundred percent of all farmers reported paying off all past debts by the program's third crop cycle. Higher incomes impacted and improved livelihoods in different ways for each family. Based on the program's assessment of farmer expenditure, the new incomes generally went toward supporting:

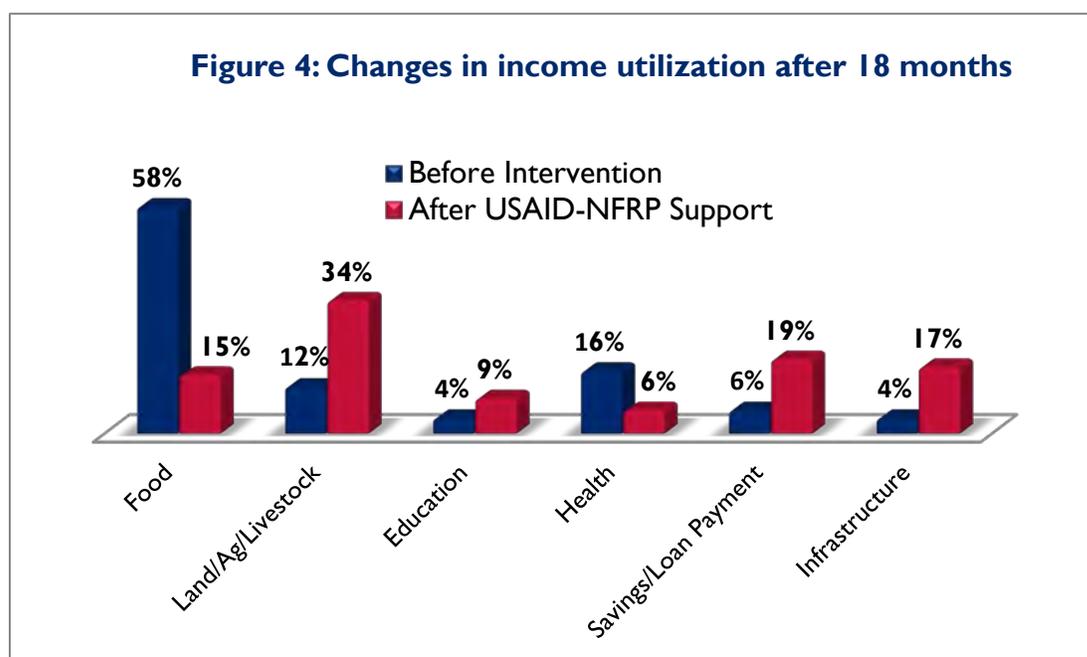
- Greater quantity, quality, and variety of food in beneficiary households and local markets.
- Loan repayments and savings.
- Increased livestock acquisitions and productivity.
- Land leasers becoming land owners.
- Decreased seasonal migration for employment, helping families stay together.
- Purchases of productive assets (land, livestock, tools and equipment).
- Increased demand for local on-farm labor.
- School enrollment improved; reduction in

dropouts.

- High-value crop production expanded via the program's diffusion effect.

Figure 4 illustrates the changes in households' financial resource allocations towards their various livelihoods needs. Most notable were the decrease in proportionate food expenditure and the strong increases in the acquisition of productive assets, infrastructure development, and savings and loan repayments. This is a clear indicator that, before farmers can address more progressive needs like health and education, their first priority is economic stabilization and investing in the future, which in turn provides a foundation for wider progress.

Improved food security: The improvements in farmers' incomes and increased productivity of high-value and nutritious foods had a dramatic impact on improving the food security of beneficiary households. Studies conducted on household food consumption confirmed that family-level nutrition improved as a result of the extra income earned by farmers to pay for food, rather than the types of production on their land. The indirect benefits to the general public were also measured. In many cases, it was demonstrated that often the only source of nutritious vegetables in local markets were the program's farmers in nearby communities.



4.1.4 Rural employment increased

USAID-NFRP supported deeper economic growth within communities through short-term employment opportunities created by investments in infrastructure and increases in agricultural productivity. Sixty-six percent of all commercial farmer households utilized paid labor for the transplanting, harvesting, and transportation of their products. Through commercial agriculture interventions, an estimated 290,000 person-days of temporary employment (52 percent women) were generated for agricultural laborers (often landless) within target communities, equal to \$638,000 of cash injected into local economies. The infrastructure component also generated 171,948 person-days of temporary employment, providing an additional cash injection of \$404,000 to the local labor force.

4.1.5 Access to inputs and agricultural extension services increased

Accessing inputs from reliable suppliers is a common challenge in rural Nepali communities. Where agro-vets exist, they often lack the necessary supplies required by farmers to sustain high-value vegetable production, not to mention deficiencies in availability or technical

support. Despite these challenges, many small agro-vets operate as serious businesses and are eager to expand their clientele.

USAID-NFRP completed a thorough survey in Phase III of 85 agro-vets (agricultural and veterinary input suppliers) operating in the three districts to assess their capacity to offer long-term services to program farmers. The objective was to strengthen the relationship between agro-vets and USAID-NFRP's farmers and improve agro-vets' knowledge and understanding of the transition farmers were going through as they scaled up productivity and converted to high-value vegetable production. This allowed agro-vets to adapt their provisions to a new and growing market opportunity in the form of program-supported farmers that achieved significantly higher levels of production than in previous years. Profiles for each agro-vet were prepared and 15 were selected by USAID-NFRP as having the highest potential (Table 4). Multiple coordination and training events worked to:

- Establish relationships that could lead to long-term business opportunities for the 15 selected agro-vets and reliable access to

Table 4: Agro-Vets Participating in Phase III Voucher System

No.	District	Name of Agro-Vet	Annual Revenue (2011)	Increased Revenue from Voucher System	Percent Increase in Revenue
1	Dadeldhura	Laxmi Agro-Vet Centre	2,500,000	657,020	26%
2	Dadeldhura	Soud Agro-Vet Centre	1,500,000	592,674	40%
3	Kailali	Kisan Agro-vet	40,000,000	175,328	1%
4	Kailali	Krishak Sahayog Kendra	35,000,000	1,511,726	4%
5	Kailali	Basulinga Agro-vet	10,000,000	658,112	7%
6	Kailali	New Pashupati Agro	5,000,000	76,226	2%
7	Kailali	Tanka Agro-vet Centre	900,000	695,718	77%
8	Kailali	Universal Agro Suppliers	1,200,000	511,016	43%
9	Kailali	Ghaodaghodi Agro-vet	500,000	31,074	6%
10	Kailali	Jiwan Agro Centre	2,160,000	356,768	17%
11	Kailali	Jai Kaphali Agro-vet Centre	1,000,000	255,664	26%
12	Kailali	Anil Agro-Vet	1,000,000	258,960	26%
13	Kanchanpur	Sammi Agro Pharma	1,500,000	293,930	20%
14	Kanchanpur	Debid Agro Pharma	2,000,000	354,680	18%
15	Kanchanpur	DK Agro-vet	2,000,000	312,976	16%

quality inputs for USAID-NFRP farmers.

- Train the agro-vets on laws and regulations related to input services.
- Devise modalities for a voucher program that allowed farmers to purchase the inputs co-invested with USAID-NFRP directly from one of the selected local agro-vets.

With these 15 input suppliers, USAID-NFRP developed an input distribution program through a voucher system that provided coupons to farmer groups to purchase the required seeds and supplies from their designated agro-vets. Each coupon only paid for the co-investment amount that USAID-NFRP committed. The remaining amount was paid directly by farmers, and supplies were not distributed until agro-vets received full payment.

Through this process, agro-vets learned about farmers' demands and could work with them to determine the inputs they would require for future production. Farmers, at the same time, developed a sense of trust and familiarity with their local suppliers, which provided the foundation for long-term business relationships that went well beyond the duration of the program. USAID-NFRP also provided technical assistance to the selected agro-vets in market assessment, financial and administrative management, and extension services delivery.

Despite the program's financial support to farmers diminishing significantly over the three crop cycles, agro-vets continued to experience high sales as farmers became more willing to invest their own resources and continue commercial scales of high-value crop production. These relationships between farmers and agro-vets, and their associated economic value, will continue to grow as new farmers adopt the successful practices of their neighbors and demand improved inputs.

4.1.6 Access to markets and information increased

Market development: Program specialists worked with 14 local markets to improve coordination with program farmers and



As supply increases, so does the need for space to sell. This market shed in Dhangadhi, built by USAID-NFRP, serves as a center for economic activity for rural sellers and buyers.

establish long-term commitments from buyers and wholesalers. The engineering team also worked to identify technical and infrastructural constraints of local markets and determine what could be addressed with effective financial support from USAID-NFRP. Eight sites were ultimately selected for program support in the construction of model market sheds and collection centers. In addition to enhancing local trade, all market centers were designed to facilitate trainings, meetings, and crop storage. Marketing committee members were also trained in organizational, financial, and personnel management, and participated in monthly coordination events with program farmer groups.

USAID-NFRP worked with the DADO and local chambers of commerce in Inaruwa, Birgunj, Nepalgunj, and Dhangadhi municipalities

Officials from the Dhangadhi wholesale market in Kailali reported in 2011 that vegetable imports from India dropped 40 percent. Much of this reduction in imports was attributed by local officials to USAID-NFRP's impact in promoting high-value vegetable production with immediate market opportunities.

to broadcast daily wholesale prices of all locally-produced vegetables on local radio stations. Real-time market information systems were developed that allowed farmers to access price and product information via SMS messaging.

USAID-NFRP conducted the *Market and Value Chain Envisioning Workshop* in August 2011 with 86 participants from local farmer and private-sector associations, government agencies, local chambers of commerce, Federation of Nepalese Chambers of Commerce and Industry (FNCCI), AEC, SEAN, and the Pesticide Association of Nepal. Workshop participants reviewed and assessed the capacity of local traders and input suppliers and their accessibility to farmers; marketing (trade) networks; constraints to exporting to India; and the opportunities for furthering access to the national market.

In December 2011, USAID-NFRP assisted FNCCI and the DADO of Kailali in organizing a regional trade festival titled "Economic Development for Sustainable Peace" in Dhangadhi municipality. The event was an opportunity to showcase and promote the products and services available in the region, with the agriculture sector prominently highlighted. The week-long festival greatly facilitated interaction and agreements between potential producers, traders, and buyers. Program-supported farmers set up several stalls displaying their produce. The exhibition ended with a competition that identified the best vegetable products and producers of the Far West. Out of the 12 categories on which the farmers were evaluated, USAID-NFRP-

supported farmers received the first prize in 11 categories, including productivity, quality, taste, and size.

Finally, in February 2012 the program, in collaboration with the Kailali chamber of commerce, organized a two-day workshop to help coordinate production with market demand and to organize farmer and buyer transactions. The workshop included 59 participants from local wholesalers, traders, and farmer groups, as well as the local DDCs, DADOs, and the Regional Directorate of the Department of Agriculture.

Impacts on import substitution: Officials from the Dhangadhi wholesale market in Kailali, as well as representatives from the local DADO and FNCCI offices, reported in 2011 that vegetable imports from India dropped 40 percent (from NPR 60 million to NPR 36 million). Much of this NPR 24 million reduction in imports was attributed by local officials to USAID-NFRP's impact in promoting high-value vegetable production with immediate market opportunities, including substituting imports, in communities of Kailali and Kanchanpur.

Further research is required to draw direct links between program farmers' output and the substitution of Indian imports, but some basic analysis at least indicates a strong correlation. Of the more than 1,100 farmers on 220 hectares of demonstration plots in the area, USAID-NFRP estimates that more than 40 percent market their produce through Dhangadhi. The time period during which imports dropped by 60 percent corresponded roughly to the second and third crop cycles of Phase II. During these two cycles, the gross sales value achieved in vegetable production by all program-supported farmers in the two districts was NPR 66 million. If 40 percent of this went through the Dhangadhi market, the total would come to NPR 26 million, which is actually NPR 2 million more than the amount reported by officials. This is not direct evidence, but is a clear indication that USAID-NFRP's farmers are largely behind the substitution of vegetable imports from India in this region.

4.2 Access to Small-Scale Community Infrastructure Increased

The infrastructure component directly benefitted 837,726 individuals (136,600 households) from flood-affected and food insecure communities; increased access of productive land to irrigation by 4,988 hectares; and generated 171,948 days of paid skilled and unskilled labor. By all standards, the program exceeded original expectations largely due to its emphasis on cost-effective, high-impact projects that addressed the common needs of communities and required considerable amounts of local labor.

4.2.1 Irrigation

The technical designs selected by USAID-NFRP were based on a cost-benefit analysis of the three micro-irrigations systems most common in Nepal: shallow tube wells with motorized pumps, gravity flow systems, and water harvesting systems. Treadle pumps were not included in this analysis because, while their cost is one-fourth that of a shallow tube well, they only irrigate up to one kattha (333 square meters) of land whereas a shallow tube well covers up to 180 katthas (6 hectares). The capacities do not compare and treadle pumps were therefore determined to be impractical.

Over the long term (20 to 30 years), shallow tubes wells, at an annualized cost of \$71 per year, are the most financially viable micro-irrigation systems available to smallholder

farmers. However, their application is limited to the lowland areas of the Terai that have reliable access to groundwater. For the Hills regions, gravity flow systems (\$97 per year) based on the technologies promoted by USAID-NFRP are dramatically more cost-effective than the water harvesting systems (\$148 per year) promoted by other programs. In addition, gravity flow systems are designed to provide year-round water supply to farmers, whereas water harvesting only offers the minimum required for a limited scale of off-season production.

Irrigation by water harvesting has comparatively lower potential unless there are no other options available because of the land's unique geophysical conditions. Although the installation cost is relatively cheap, the efficiency, in terms of area coverage and year-round reliability of water supply, is much lower than gravity flow systems. Water harvesting is therefore less suitable for high-value crop production on commercial scales. When factoring in the lifespan of the three systems, water harvesting is nearly twice as expensive as gravity flow systems over the long term.

Groundwater irrigation systems: USAID-NFRP promoted 820 groundwater irrigation installations (shallow tube wells and motorized pumps) throughout the Terai in order to allow commercial farmers to achieve counter-seasonal HVC production. In addition, 74 sheds were constructed to provide permanent protection and security to the pumps and wells,

Table 5: Results of the Infrastructure Component

Project Type	# of Projects	Cost (USD)		Employment Generated	Beneficiary Households
		USAID-NFRP	Counterpart		
Shallow tube well installations (x134)	3	\$94,272	\$44,799	2,534	1,375
Surface or gravity-fed irrigation systems	10	\$134,994	\$11,686	7,405	356
Bridges and culverts	55	\$1,182,166	\$40,480	61,590	80,800
Road improvements	10	\$294,209	\$7,734	14,370	14,037
Market sheds and collection centers	8	\$84,973	\$2,773	2,326	34,955
Flood controls	28	\$584,462	\$50,045	52,138	4,822
School construction	14	\$448,149	\$46,100	30,385	3,564
School equipment	1	\$28,499	\$0	0	3,564
Health post	1	\$8,256	\$2,023	710	1,418
Public bathrooms	2	\$5,807	\$133	490	355
TOTAL	132	\$2,865,787	\$205,773	171,948	136,600

and another 30 trolleys were distributed to farmers who preferred to store their pumps at home. Each installation covered a maximum of 2.5 hectares of demonstration plots per well, allowing farmers to produce and sell surplus irrigation water to their neighbors, up to an additional four hectares.

Co-investment from farmers to pay for the cost of irrigation, improved technologies, and agricultural inputs increased significantly over the three phases. By program completion, a total of \$109,734 was collected from farmers to pay for the cost of the groundwater irrigation installations.

USAID-NFRP received excellent cooperation from the local Groundwater Irrigation Board in Sunsari district, which is implemented by the government's ADB-funded plan to increase the irrigation supply for Koshi flood victims. The board installed 182 irrigation sets for USAID-NFRP beneficiaries. This amounted to \$110,000 in government contribution.

Surface irrigation systems: In the context of the Hills, neither traditional gravity-fed systems



A shallow tube well and a motorized irrigation pump helped farmers in Dhangadhi cost-effectively allow for year-round productivity.

nor rainwater water catchments and drip irrigations were determined to be adequately cost-effective to promote irrigated, high-value crop production. Consequently, the team selected and designed hybrid systems that utilized the infrastructure of pre-existing gravity

Table 6: Comparison of Common Micro-Irrigation Systems

Issue	Types of Irrigation System		
	Shallow Tube Well with Motorized Pump	Gravity Flow (open channel or pipe)	Water Harvesting (plastic ponds)
Geographical suitability	Terai	Terai and Hills	Hills
Appropriate for the following crops	Rice, wheat, and vegetables	Rice and wheat – if water is sufficient (open channel flow) Vegetables – if water is limited (pipe flow)	Vegetables only
Construction cost per hectare	NPR 120,000 (\$1,422) (based on USAID-NFRP's average cost in the Terai; includes protection shed)	NPR 200,000 (\$2,370) (based on USAID-NFRP's average cost in the Hills)	NPR 50,000 (\$592) (for a plastic pond with 50,000 liters capacity; cost of drip irrigation set not included)
Service period	20 years	30 years	4 years
Catchment area	Not required	Not required	100 square meters (with complementary structures per site conditions)
Potential for commercial vegetable production	High	High	Low – without drip irrigation Low/Med – with drip irrigation
Land irrigating capacity	5-6 hectares	10-50 hectares	1 hectare
Potential for income generation	High	High	Low
Operational cost per hectare	NPR 1,500 per year (\$17)	One-time investment	One-time investment

flow systems while also applying low-cost alternative technologies, such as submersible pumps and inlaid piping, that expanded the area under irrigation, dramatically reduced water seepage and evaporation, and were easy to maintain and repair. Gravity flow systems are dramatically more cost-effective than the water harvesting systems and are designed to provide year-round water supply to farmers, whereas water harvesting only offers the minimum required for a limited scale of off-season production.

USAID-NFRP constructed four piped irrigation systems and one lift/piped system in Dadel dhura and provided tools and other maintenance supplies to the water users committees. An irrigation user's manual for both field technicians and irrigation groups was developed by USAID-NFRP that provided easy-to-read guides on surface and groundwater system maintenance, operations, and organizational management. The contents of this manual served as the basis for the irrigation management trainings held for the water users committees.

4.3 Awareness of Sanitation, Nutrition, Gender and Protection Issues Improved

4.3.1 Nutrition and Hygiene

Activities under Phases I and II ended in late 2010, with 3,701 beneficiaries trained in improved nutrition, hygiene, and sanitation. The activities conducted under Phase III represented a modified version of the original nutrition and

hygiene program, placing much greater emphasis on measurably improving the nutritional indicators within beneficiary households such as changes in food consumption, body mass index, prevalence of breastfeeding, and diet diversity. Program assistance was extended exclusively to households with pregnant women or children less than 2 years of age.

USAID-NFRP installed 1,715 improved cooking stoves and trained each household how to use and maintain the stoves. In addition 72 ICS promoters were trained in construction, operation, and maintenance.

One unanticipated indicator of positive behavior change was the voluntary construction of latrines based on the hygiene standards and low-cost construction techniques promoted by program trainers. This had such an impact that many other non-trainee community members also constructed latrines. Overall, 854 latrines were voluntarily constructed, 1,437 trainees installed pits and drains to improved their wastewater management, and 1,619 families now compost all of their organic wastes.

Home gardening: A total of 4,517 households were trained in the nutrition awareness program and managed up to three production cycles (in just one year) on their 333 square-meter home gardens, covering 149 hectares of productive land.

Successful home gardeners demonstrated their ability to move beyond nutritious food

Table 7: Results of Sanitation, Hygiene, and Nutrition

No.	Indicator/Activity	Final Result
1	People trained in enhanced sanitation, nutrition and hygiene	5,960
	Adults	4,127
	Schoolchildren	1,833
	Percent of female trainees	77%
2	Incidence of regular hand-washing of after training	99%
3	Incidence of regular breastfeeding for children <6 months after training	87%
4	Improved cooking stoves installed	1,715
5	Community-level ICS promoters trained	72
6	Households assisted with model latrines	240
7	Households with voluntary installation of low-cost model latrines	854

production and incorporate themselves into the high-value vegetable markets that were developing within their communities, thanks to the assistance of USAID-NFRP's commercial agriculture program. Surveys conducted by the social inclusion team indicated that 65 percent of home garden beneficiaries used the majority of their harvests for household consumption. The remaining 35 percent used approximately half of their harvests for consumption and sold the surplus for additional income.

Table 8: Improvements in Health and Nutrition

Indicator/Activity	Percent reporting, April 2011	Percent reporting, June 2012	Percent change
Food security (enough food for 12 months)	59%	91%	32%
Toilet/latrine access within household	42%	81%	39%
Breastfeeding 15 to 20 times per week	79%	84%	5%
Normal weight gain in children 6 months to 5 years old	52%	68%	16%
Underweight children 6 months to 5 years old	45%	28%	-17%
Normal weight gain in mothers aged 15 to 45 years	62%	80%	18%
Underweight mothers aged 15 to 45 years	34%	18%	-18%

4.3.2 Protection of women and children

A total of 1,937 young women and 2,330 adults were trained in the BLOP and REFLECT methodologies, respectively. Trainings emphasized the promotion of gender rights and equality, and the prevention and control of human trafficking and discriminatory practices toward youth, women, and vulnerable ethnic groups. Parents also received training on the objectives and modalities of the program.

4.4 Local Organizational Capacities of Youths and Vulnerable Populations Strengthened

4.4.1 Youth leadership, community development and disaster management

The Phases I and II training programs in community development, youth leadership, and disaster preparedness and management for 76 community-based organizations and 76 youth clubs concluded in March 2011 with 1,472 adults and 1,467 youths trained in organizational planning, leadership development, conflict resolution, community planning and assistance leveraging, networking and teamwork skills development, and development of community-based change agents.

Table 9: Results in Youth Leadership

No.	Indicator/Activity	Final Results
1	Participants trainees in youth leadership program	1,467
2	Youth clubs trained and assisted	72
3	Community service projects implemented	72
4	Formation of Young Women's Football Teams	12
5	Training/coaching of Young Women's Football Teams	264

The youth leadership training program emphasized confidence building and the development of communication and conflict resolution skills that can be applied to everyday situations within communities and local governments. Topics included leadership; participation and democracy; networking and collaboration; organizational planning; advocacy and participation in local decision making; community assessments; the project cycle; and leveraging assistance.

Once the youth clubs reached the midway point in the training, they qualified for a small donation of materials, supplies, and furniture to help support their operations and strengthen each organization's identity and capacity within its VDC. This also facilitated registration with the VDC governments, thus allowing the youth

clubs to formally raise funds and participate in local planning and decision making.

Club members were given the opportunity to apply their newly-developed skills through community support projects that they selected, designed, and implemented with limited technical and financial assistance from the program. Trainees' enthusiasm for this activity was beyond all expectations, as was demonstrated by their ability to collect and contribute significant community resources for the projects. In all, youth clubs raised more than \$12,000, in addition to the \$8,000 provided by USAID-NFRP to facilitate the following kinds of projects:

- Street maintenance and garbage collection
- Potable water supply
- Libraries and school supplies
- Road improvements and culvert construction
- Public toilet construction
- After school sports programs
- School building improvements
- H₁N₁ awareness training
- Environmental awareness for adults
- Eye-check and vitamin D distribution camps

In early 2010, USAID-NFRP hosted two regional workshops in Dhangadhi and Birgunj municipalities, bringing together representatives from each of the youth clubs to share their experiences regarding the training program, discuss the future of their organizations, and develop networks among their peers. Each group was also able to present the results of its



Winners of the 2011 football tournament, Far West.

community support project and thus serve as local "experts" for other groups interested in replicating the same activities within their communities. The chief district officers and local development officers, members of the Nepal Red Cross Society, and representatives from UNICEF, WDO, Mercy Corps, and Save the Children attended these workshops.

Disaster preparedness and management training was provided to all 1,472 members of the targeted community-based organizations. Each group received an in-kind donation of critical first aid and early response supplies to effectively respond to local crises caused by flooding.

USAID-NFRP also initiated a young women's football program in VDCs of Kailali and Kanchanpur. A total of 264 young women participated in the four-month program that culminated in an inter-VDC tournament in January 2011 with teams from each of the 12 VDCs.

Table 10: Results in Community Development and Disaster Management

No.	Indicator/Activity	Final Results
1	Participants trainees in community development program	1,472
2	Community-based organizations trained and assisted	72
3	Participants trained in disaster management/prevention program	1,553
4	Disaster preparedness/management committees organized	72
5	Basic disaster response and first aid supplies distributed	72



5. CHALLENGES AND LESSONS LEARNED

5.1 Challenges

Security in the Terai was a constant concern to the program, especially during periods of frequent *bandhas*. Despite these disruptions, USAID-NFRP staff movements were largely uninterrupted. The program, in general, was not seriously affected by the situation, although activities were occasionally hampered in terms of timing, cost, and movement by the frequent stoppage of transportation on main roads and highways. By blocking imports and local trade, *bandhas* often caused increases in the cost of construction. Prices on many supplies went up, at least temporarily, by more than 40 percent. USAID-NFRP was able to circumvent most of these complications by authorizing the procurement of all materials at the initiation of each project to avoid future scarcities and price hikes. Upon delivery to the worksites, subcontractors were immediately paid their first installments under fixed price arrangements to

ABOVE: Community trainers regularly monitor child height and weight. Nutritional impact is measured both in terms of changes in food consumption and by indicators such as body mass index, prevalence of breastfeeding, and diet diversity.

ensure adequate operating capital during construction.

Heavy load shedding (up to 20 hours per day) persists in Nepal. Staff and subcontractors took the necessary measures to prevent this from slowing implementation. The price of construction materials also increased due to the low productivity levels of local and national industries.

The commercial agriculture program faced initial difficulties in identifying potential program beneficiaries in certain VDCs mainly due to

farmers' **limited landholdings**. In other cases, most farmers already had their land under production with their typical winter cereals and oilseed crop rotation. To ensure the program reached its targets, some farmers were also selected from communities directly adjacent to the designated VDCs.

5.2 Lessons Learned

General

- Integration of interventions from multiple sectors (agriculture, infrastructure, nutrition) deepens impacts and strengthens sustainability.
- Whole community engagement promotes ownership and buy-in.
- Local capacity building maximizes outreach and ensures sustainability.
- Collaboration maximizes resources and expands impact.
- Gender and social equality maximizes economic impact (i.e. access to technologies, extension services, markets and leadership opportunities).
- Flexibility is critical to both flood recovery and food security.

Infrastructure

- Substantial improvements in agricultural production and commercialization cannot be achieved without targeted investments in productive infrastructure.
- Priority should be given to construction of well-vetted projects that provide direct and immediate benefits to program-supported commercial farmers and home gardeners.
- Local construction firms are generally more technically sound and cost effective than local NGOs.
- Logistics planning is of primary importance for executing a project efficiently and on time, otherwise projects

can be paralyzed by *bandhas* and other disruptions.

- Good counterpart planning requires an assumption that the co-financier may not be able to provide funding. Subcontracting should be between USAID-NFRP and the subcontractor only and for the full value of the project. If the counterpart money comes later, the subcontract can be modified.
- Land stabilization is crucial for rural infrastructure. All projects required basic grass turfing, reforestation, and live barriers to prevent erosion.
- The type of flood control projects (gabions, diversion channels, embankment repairs) that could be supported with USAID-NFRP funds were limited and were not long-term solutions for flood-affected communities. Support should be more directed toward infrastructure that promotes livelihoods and income generating activities by improving transportation and productivity; including bridges, culverts, irrigation systems, road repairs, market rehabilitation, and agricultural collection centers.



After years of inadequate learning conditions, students in Hariharpur are attending classes in a brand-new building, which also serves as a community center and flood refuge. The school benefits 368 households and its construction created more than 2,400 days of short-term employment.

Commercial Agriculture

- Co-investing in improved technologies, inputs and agronomic practices helps to maximize outputs and establishes a strong capital base for farmers to maintain high production levels and invest in continued growth.
- Land-based demonstration farming model ensures strong commitments from farmers, facilitates planning, and provides a firm basis for estimating project outcomes and their positive or negative effects on local value chains.
- Understanding farmers' economic and livelihood statuses, landholding size, and potential as producers is crucial to designing appropriate food security interventions that address the real opportunities available to farmers and their households.
- Markets inform crop selection; access to information is vital to farmers.
- Farmers can and want to manage their farms as businesses.
- Agricultural extension activities require a significant investment of time by well-trained technicians. Para-technicians with basic skills that come from the targeted communities are effective if well managed by experienced staff, and when they have clearly spelled-out work plans and objectives.
- Farmers limit their productivity by relying exclusively on composting for fertilizer; greater promotion of chemical fertilizer and rotation strategies are required.

Nutrition and Hygiene

- Nutrition awareness and behavior change training is less effective without coordinated assistance in agricultural production or income generation activities.
- Integrated approach creates trust and a "captive audience."



A female farmer displays her long bean crop. USAID-NFRP worked with farmers across ethnic classes throughout the Terai, including this Rana woman for Boradadi village in Kailali.

- Smaller landholders with lower potential as commercial producers can be addressed by nutritious food production through home gardening.
- Home gardens are an effective means to teach households the importance of dietary diversity and its contribution to overall health. Technical training in vegetable gardening, however, should be provided by trained agriculturalists to maximize results.

Organizational Strengthening / Protection of Women and Children

- Community support must be substantial for programs to have an impact.
- Additional training on conflict management should be provided as this was frequently requested by trainees and communities.

ANNEX I: PERFORMANCE MONITORING PLAN

No.	Activity	Phase I & II Results	Phase III Targets	Total Targets	Phase III Results	Results To Date	Completion Rate
1. Program Level Objective							
1.1	Number of beneficiaries assisted by USG-supported protection and solutions activities	853,467	102,400	955,867	55,534	909,001	95%
2. Objective I: Rehabilitation and Rebuilding of Productive Infrastructure							
2.1	Number of community infrastructures constructed a/o rehabilitated	119	25	144	13	132	92%
2.1.1	Number of classrooms constructed with USG assistance (Program Element IIP – 2.1 Basic Education)	52	0	52	0	52	100%
2.1.2	Number of classrooms repaired with USG assistance (Program Element IIP – 2.1 Basic Education)	4	0	4	0	4	100%
2.1.3	Number of model latrines in community schools	2	0	2	0	2	100%
2.1.4	Number of drinking water sources installed or improved	0	0	0	0	0	N/A
2.1.5	Number of community irrigation systems rehabilitated	5	0	5	5	10	200%
2.1.6	Number of river protection projects (e.g. embankment protections, gabions, spurs, check dams)	30	0	30	0	30	100%
2.1.7	Kilometers of transportation infrastructure constructed or repaired through USG assistance (Program Element EG 4.3 Transport Services)	17	0	17	0	17	100%
2.1.8	Number of transportation infrastructure projects such as culverts and small bridges constructed or repaired	53	0	53	0	53	100%
2.2	Number of people in target areas with access to improved drinking water supply as a result of USG assistance (Program Element IIP – 1.8 Clean Water and Sanitation Services)	0	0	0	0	0	N/A
2.3	Number of people benefiting from USG sponsored transportation infrastructure projects (Program Element EG 4.3 Transport Services)	562,549	0	562,549	0	562,549	100%
2.4	Number of households benefited by community infrastructure projects (assumes an average of 150 benefiting HHs per VDC)	128,881	15,000	143,881	7,719	136,600	95%
2.5	Number of person-days of temporary employment generated by infrastructure activities (estimated at 15% of construction costs)	165,106	13,630	178,736	6,842	171,948	96%
2.6	Subcontract funds disbursed (in USD)	\$2,665,027	\$220,000	\$2,885,027	\$162,614	\$2,827,641	98%
2.7	Cost sharing leveraged from communities, local governments a/o other donor programs (in USD)	\$150,806	\$12,449	\$163,255	\$54,967	\$205,773	126%

No.	Activity	Phase I & II Results	Phase III Targets	Total Targets	Phase III Results	Results To Date	Completion Rate
3. Objective 2: Provision of Income Generation Activities							
3.1	Number of individuals who have received USG supported long term agricultural sector productivity training (EG 5.2 Agricultural Sector Productivity)	4,435	2,700	7,135	3,101	7,536	106%
	Number of women trained	1,330	945	2,275	1,070	2,400	105%
3.2	Number of rural households benefiting directly from USG interventions (EG 5.2 Agricultural Sector Productivity)	4,435	2,700	7,135	3,101	7,536	106%
3.3	Number of vulnerable households benefiting directly from USG interventions (EG 5.2 Agricultural Sector Productivity)	2,335	540	2,875	2,171	4,506	157%
3.4	Number of producers organizations, water users associations, trade and business associations receiving USG assistance (EG 5.2 Agricultural Sector Productivity)	92	30	122	0	92	75%
3.5	Number of new technologies or management practices made available for transfer as a result of USG assistance (EG 5.2 Agricultural Sector Productivity)	4,435	2,700	7,135	3,101	7,536	106%
3.6	Implementation funds disbursed (in USD)	\$739,027	\$490,000	\$1,229,027	\$305,654	\$1,044,681	85%
3.7	Cost sharing leveraged by beneficiary farmers (25% of in-kind investment)	\$182,848	\$98,000	\$280,848	\$75,000	\$257,848	92%
4. Objective 3: Improved Sanitation, Hygiene and Nutrition (SHN)							
4.1	Number of people in target areas with access to improved sanitation facilities as a result of USG assistance (Program Element IIP – 1.8 Clean Water and Sanitation Services)	1,648	0	1,648	0	1,648	100%
4.2	Number of people trained in improved sanitation, hygiene and nutrition	3,701	2,200	5,901	2,259	5,960	101%
4.3	Number of households with improved nutrition due to demonstration kitchen gardens	2,258	2,200	4,458	2,259	4,517	101%
4.4	Number of households with improved sanitation due to improved cooking stoves	1,715	0	1,715	0	1,715	100%
4.6	% increase in the incidence of hand-washing of SHN trainees	80%	80%	85%	0%	1	94%
4.7	% of kitchen garden beneficiaries that continue to eat a minimum of five meals per week with green/leafy vegetables	80%	80%	80%	0%	1	100%
4.8	Subcontract funds disbursed (in USD)	\$258,695	\$80,000	\$338,695	\$42,907	\$301,602	89%
4.9	Cost sharing leveraged (15% minimum, in USD)	\$36,740	\$0	\$36,740	\$0	\$36,740	100%

No.	Activity	Phase I & II Results	Phase III Targets	Total Targets	Phase III Results	Results To Date	Completion Rate
5. Objective 4: Strengthening of Local Peace Committees or Other Local Groups							
5.1	Number of groups receiving institutional strengthening and organizational development technical assistance and training	144	0	144	0	144	100%
5.2	Number of community members trained	3,275	0	3,275	0	3,275	100%
	Number of women trained	1,773	0	1,773	0	1,773	100%
	Number of youth trained	1,767	0	1,767	0	1,767	100%
5.3	Subcontract funds disbursed (in USD)	\$147,002	\$0	\$147,002	(\$10,125)	\$136,877	93%
5.4	Cost sharing leveraged (10% minimum, in USD)	\$0	\$0	\$0	\$0	\$0	N/A
6. Objective 5: Protection of Women and Children							
6.1	Number of people trained	4,267	0	4,267	0	4,267	100%
	Number of women trained	3,641	0	3,641	0	3,641	100%
	Number of youth trained	1,937	0	1,937	0	1,937	100%
6.2	Number of women and youth organizations strengthened (assumes one group per VDC)	72	0	72	0	72	100%
6.3	Number of people trained in Trafficking-in-person related issues with USG assistance (Program Element PS5.3 – Trafficking-in-Persons and Migrant Smuggling)	4,329	0	4,329	0	4,329	100%
6.4	Subcontract funds disbursed (in USD)	\$26,746	\$0	\$26,746	(\$1,267)	\$25,479	95%
6.5	Cost sharing leveraged (10% minimum, in USD)	\$0	\$0	\$0	\$0	\$0	N/A
7. Objective 6: Windows of Opportunities							
7.1	Number of special studies (Program Design and Learning Element)	0	0	0	0	0	N/A
7.2	Number of Baseline or Feasibility Studies (Program Design and Learning Element)	0	0	0	0	0	N/A
7.3	Subcontract funds disbursed	\$0	\$0	\$0	\$0	\$0	N/A
7.4	10% cost sharing target (in USD)	\$0	\$0	\$0	\$0	\$0	N/A

ANNEX II: SELECTED HIGHLIGHT STORIES

Productive Farm Helps Reunite Family

With increased yields and incomes, smallholder farm family no longer needs to emigrate to India for work.



Photo by Fintrac Inc.

Sushmita Chaudhary diversified to high-value crops such as tomatoes on her small farm. By employing good agricultural practices and learning to see farming as a business, she and her family are earning seven times what they did previously.

“My husband already cancelled his plan to migrate to India this season. He is now working with me on our farm.”

Sushmita Chaudhary

Sushmita Chaudhary had difficulty supporting her large family on her small farm. The family was only able to produce enough food to feed them for seven months. Chaudhary was forced to sharecrop on another farm to earn enough to feed her family.

Several members of the family, including Chaudhary’s husband and brother-in-law, were forced to emigrate to India in search of low-paying jobs. In 2010, four months of work only netted them a total of \$284 (NRs. 23,000). Paired with the \$2,800 (NRs. 228,000) the family earned from agriculture, they were still more than \$1,200 (NRs. 99,000) short of earning enough to meet their basic needs.

“The income and cereal crop production from our land was inadequate to sustain our 10 family members,” Chaudhary said.

In April 2011, Chaudhary heard of USAID’s Nepal Flood Recovery Program (NFRP) through a community farmer group. She decided to join, allocating 0.2 of her 0.6 hectare farm to high-value crops such as tomato and cauliflower.

She participated in the program trainings, learning good agricultural practices such as nursery management, nutrient application, trellising, crop rotation, and planting techniques. She also has access to the group’s shallow tube well, which allowed her to irrigate her crops regularly. Chaudhary received access to inputs such as seeds and fertilizers through USAID-NFRP.

In November Chaudhary’s harvest earned gross sales of \$1,400 (NRs. 105,000). Once she paid off her production costs, she earned more than \$1,200, which is more than seven times the income she took home the previous year from rice production on the same size of land. Productivity on that plot of land increased eleven-fold.

By continuing to employ good agricultural practices and with access to quality inputs, Chaudhary could stand to earn nearly \$8,000 in one year from her entire 0.6 hectare plot. This kind of income growth is truly transformational for her family.

“Thanks to the training and support from the program, I have no more worry now. I am confident this will lead to a better life for my family,” she said.

With increased incomes and yields, the family is able to stay together and farm their own land. Chaudhary has convinced her husband they can earn enough at home to support their family, eliminating the need for him to travel to India in search of difficult jobs with little income potential.

“My husband has already cancelled his plan to migrate to India this season,” she said. “He is now working with me on our farm.”

With the additional income, Chaudhary and her family will purchase a motorcycle to use for transporting their produce to bigger and better-paying markets. They are also investing in their children’s education.

March 2012

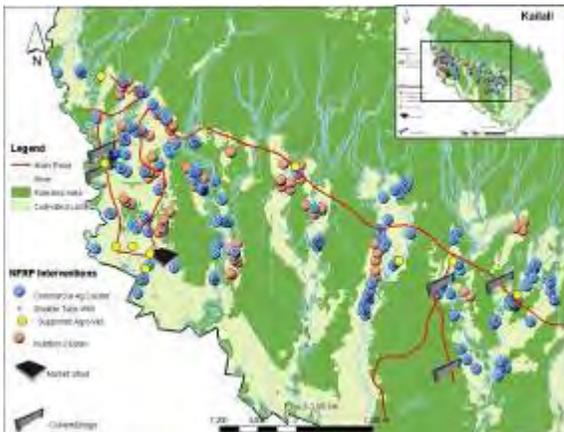
Improving Farmers' Access to Inputs

New voucher system benefiting both farmers and suppliers.



Photo by Fintrac Inc.

Client farmer, Ram Pyari Chaudhary, visits Chakra Bahadur Mahara, the agro-vet supplier with whom she has established a long-term business relationship thanks to the inputs voucher program established by USAID-NFRP.



Agro-vets assessed and selected by USAID-NFRP in Kailali district.

Many rural Nepalis are forced into a life of subsistence farming because they lack knowledge of or access to agricultural inputs and technologies that would allow them to improve the quality and quantity of their production. To expand their small-scale farms, they need high-quality seed varieties and better technologies like irrigation or integrated pest management.

The United States Agency for International Development's Nepal Flood Recovery Program (USAID-NFRP) has been looking at ways to help these farmers access adequate, affordable, and timely inputs since 2008.

Accessing inputs from reliable suppliers is a common challenge in rural communities. Where agro-vets exist, they often lack the necessary supplies required by farmers to sustain high-value vegetable production, not to mention deficiencies in availability or technical support. Despite these challenges, many small agro-vets do operate as serious businesses and are eager to expand their clientele.

USAID-NFRP has intensified its commitment to strengthening relationships between farmers and these local suppliers. The objective is to improve agro-vets' knowledge and understanding of the farmers' transition to high-value vegetable crops and increased productivity. This allows agro-vets to adapt their provisions to a new and growing market opportunity in the form of program-supported farmers that are achieving significantly higher levels of production than in previous years.

Based on a survey of 85 local agro-vets operating within the three districts, a total of 15 were selected to participate in the inputs distribution program. Ultimately a voucher system was selected, where coupons are provided to farmer groups in order to purchase the required seeds and supplies from their designated agro-vets. Each coupon only pays for the co-investment amount that USAID-NFRP has committed (decreases from 75 to 25 percent during the three crop cycles). The remaining amount will be paid directly by farmers, and supplies will not be distributed until agro-vets receive full payment.

This model is being successfully implemented in 28 VDCs, impacting 3,400 participating farmers. Through the process, agro-vets and farmers are building sustainable relationships. Agro-vets learn of farmers' current demands and are able to work with them to determine the inputs they will require for future production. Meanwhile, farmers develop a sense of trust and familiarity with their local suppliers, providing the foundation for a long-term business relationship.

"Now we buy seeds and other inputs conveniently from one supplier. The voucher system has created trustworthiness and a lasting business relationship between us and the agro-vet," said Ram Pyari Chaudhary.

Ms. Chaudhary's agro-vet supplier, Chakra Bahadur Mahara, also noted that "because of the voucher system, I am selling seeds and other inputs in much larger volumes. Now I have more buyers from the surrounding communities and my sales have increased 50 percent."

February 2012

Building a Bridge of Opportunity

“Farmers, traders, students – everyone is benefitting from this project. The community is very grateful for USAID-NFRP’s help.”

— Chakra Chaudhary



BEFORE: This bridge on the Babai River was the only connection to markets and health services for members of the Baniyabhar VDC. During the monsoon season, the river would rise above the bridge, stranding thousands.



AFTER USAID-NFRP built this bridge over the river and now villagers can safely cross the river year round.

In the southern flatlands of midwestern Nepal, the villagers of Baniyabhar have struggled for decades against the monsoon tide of the Babai River. Although normally not a mighty river, the Babai overflows during monsoon season, covering the small wooden bridge that connects 4,500 households to markets, schools, clinics and businesses. The flood cut off these people every year until the river would subside.

USAID-NFRP conducted surveys in the area, asking villagers about their concerns and hopes for the development of the region. The villagers’ main concern was the bridge over the Babai.

“For 20 years there have been plans to build a bridge, but without any funding, the project never materialized. The bridge is our priority, our dream,” said Gunakher Rimal, a social worker in Baniyabhar.

USAID-NFRP stepped up to make that dream a reality. The program built a 19-meter bridge that stands four meters above the river. What had seemed impossible for decades was completed by USAID-NFRP in four months. The project cost NRs 6,664,459 (about \$90,000), and was built with the help of community donations of in-kind services and more than NRs 100,000.

“Our communities are so lucky that we finally have what was once just a dream. This bridge has brought new opportunities for development in the area. Farmers, traders, students – everyone is benefitting from this project. The community is very grateful for USAID-NFRP’s help,” said Chakra Chaudhary, who lives in the Baniyabhar.

People now have year-round access to health services and businesses, and wholesale dealers can make regular visits to local farms, buying produce from growers to sell at local and regional markets.

USAID-NFRP works with flood-affected communities throughout the Terai region to increase farmer productivity and income, rehabilitate and develop small-scale community infrastructure, improve awareness of sanitation, nutrition, gender and protection issues, and strengthen local organizations by expanding participation among youths and vulnerable populations. The program is made possible by the generous support of the American People through the United States Agency for International Development (USAID).

December 2010

Relationships built on trust are key to successful impact

This blog post was written by Joe Sanders, Chief of Party, USAID-Nepal Flood Recovery Program.

Nutrition is an important component of economic development and food security. Evidence shows that malnutrition in the first two years of life permanently reduces cognitive function and physical capacity, making individuals more vulnerable to disease. This, in turn, reduces productivity, slows economic growth, and perpetuates poverty.

Nutrition practices are often based on customs and beliefs passed down for generations, which can make them difficult to change. It is only through strong relationships built on trust and consistency that we can hope to introduce sustainable nutrition practices that will improve food security for rural smallholder farmers.

Fintrac first started working in Nepal in the aftermath of the devastating 2007 and 2008 floods. Our USAID-funded Nepal Flood Recovery Program (NFRP) helped flood-affected communities “build back better.” We focused on small-scale community infrastructure projects such as bridges, irrigation channels, and schools, employing thousands of otherwise unemployed men and women. Through these projects, our teams got to know and understand these rural communities. Through subsequent extensions of NFRP, we began to focus more on commercial agriculture – introducing high-value crops and good agriculture practices to increase both incomes and food security, which is what the Feed the Future global hunger and food security initiative is all about.

Now in our third and final phase, we can see the far-reaching impact of using an integrated approach. By focusing on agricultural assistance and community development first, we earned the trust of small-scale farmers who have seen a bridge repaired or experienced significant increases in crop productivity. Witnessing these successes, families gain confidence in the program’s abilities and are more likely to trust our advice in other areas. We’re also on the ground every day, visiting farmers, checking in on children, and supporting community-based health centers.

I hear stories from my team every day about the impact our work has on an individual level. Take the story of Phulmati Rana – Phulmati could barely support her family of eight with her small rice crop. Her husband had to spend half of every year working in India for extra money. Her children were undernourished, subsisting on small meals of rice. After working with NFRP’s agronomists, Phulmati learned how to plant and harvest high-value vegetables such as cauliflower, tomato, and eggplant. Her family’s income has drastically increased, her children are healthier, and her husband stays in Nepal to help run the family farm.

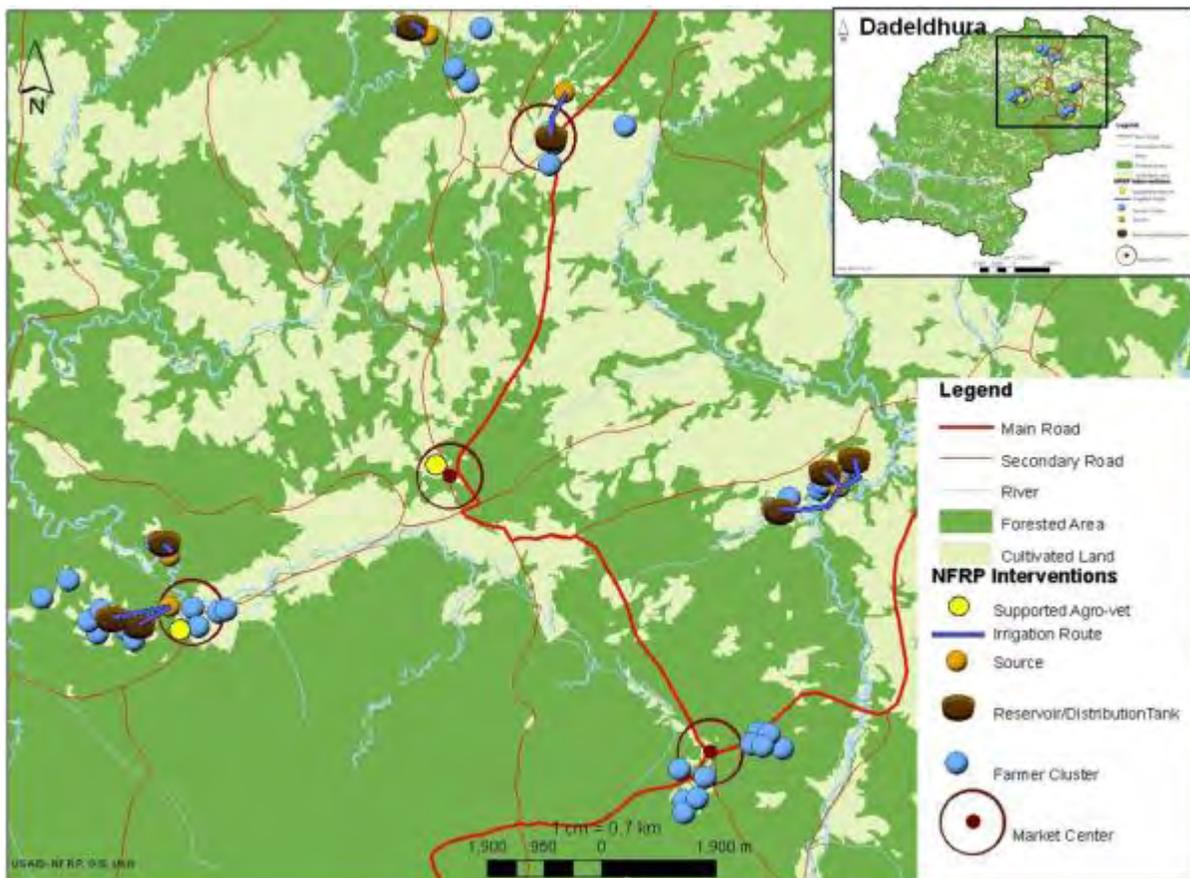
Or look at Roni Rana, a 19-year-old mother who participated in one of NFRP’s health and nutrition workshops – Roni had no idea why her infant baby was always fussy and ill, but after attending a training on infant nutrition she was able to provide adequate nutrition through breastfeeding. “My baby is four months old now,” she said. “She is growing healthy and has stopped crying as she used to.”

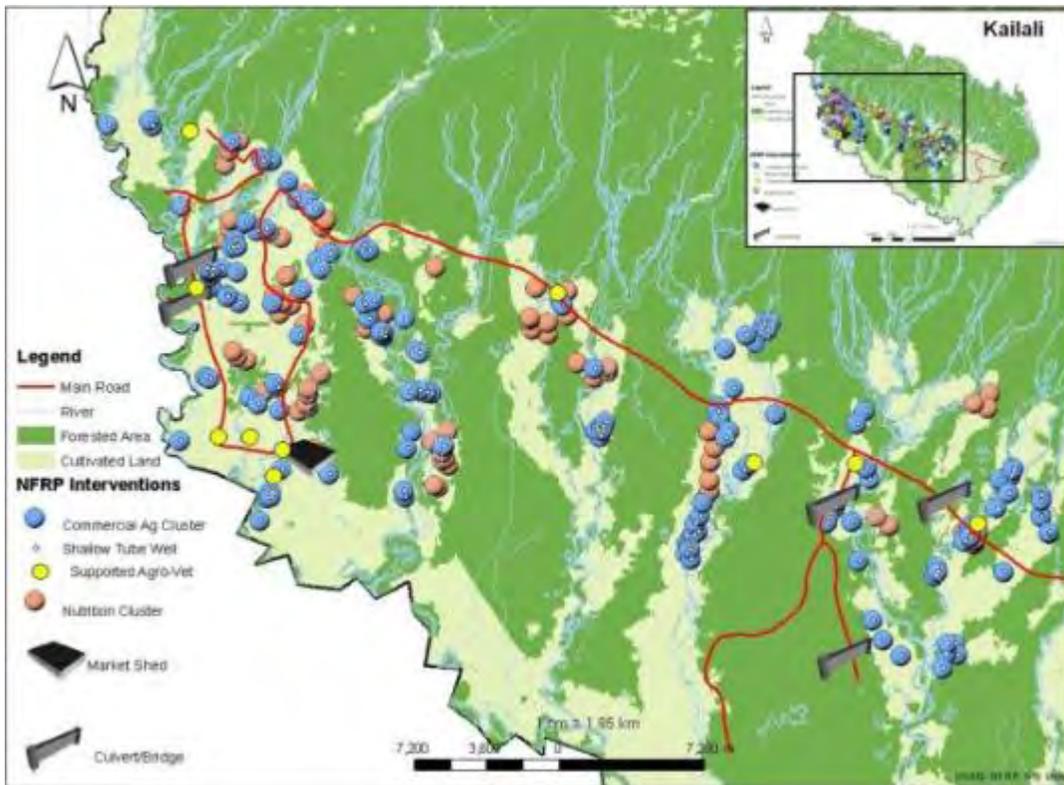
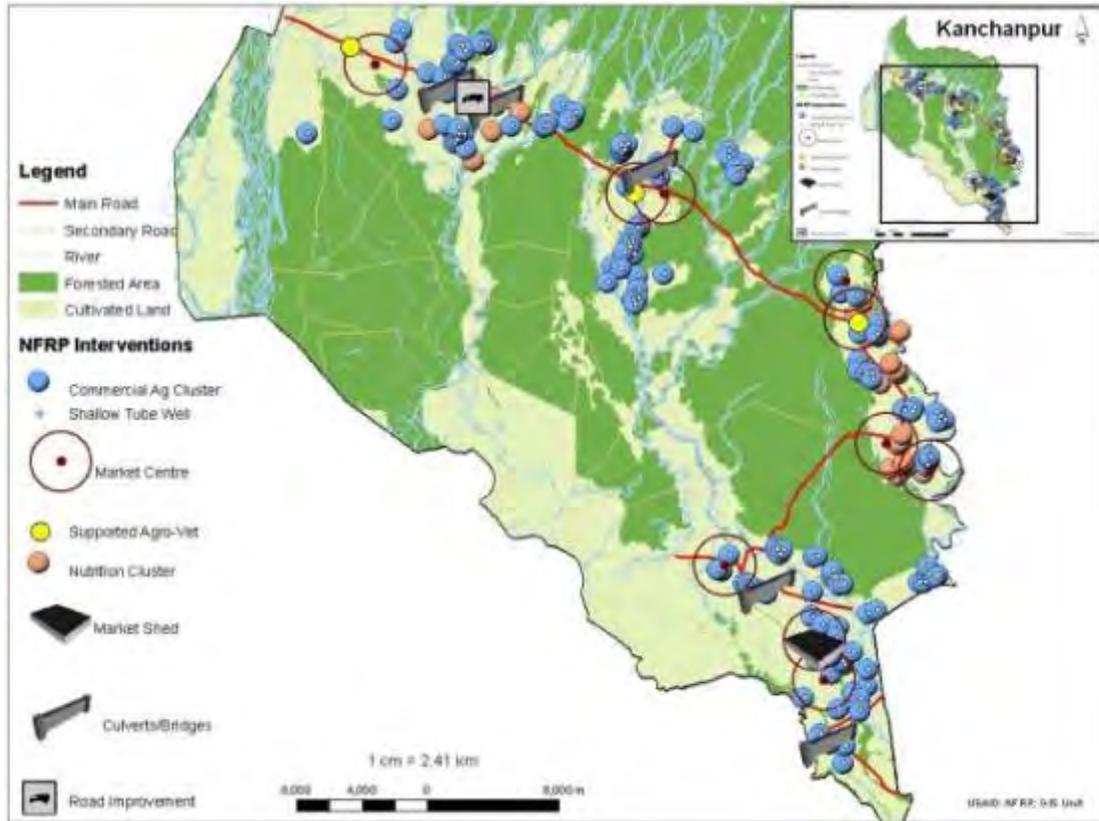
These stories, and many others, would not be possible without mutually trusting relationships. Earning confidence and respect can often be more valuable, and more sustainable, than a hundred infrastructure projects.

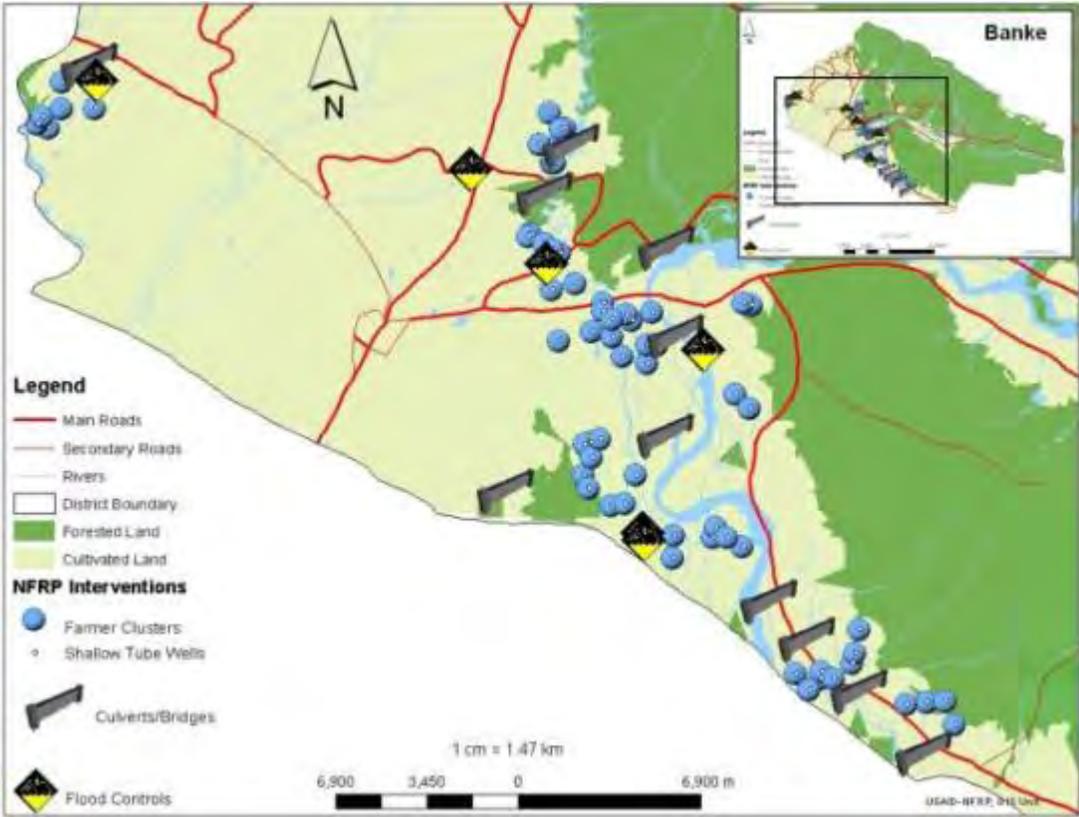
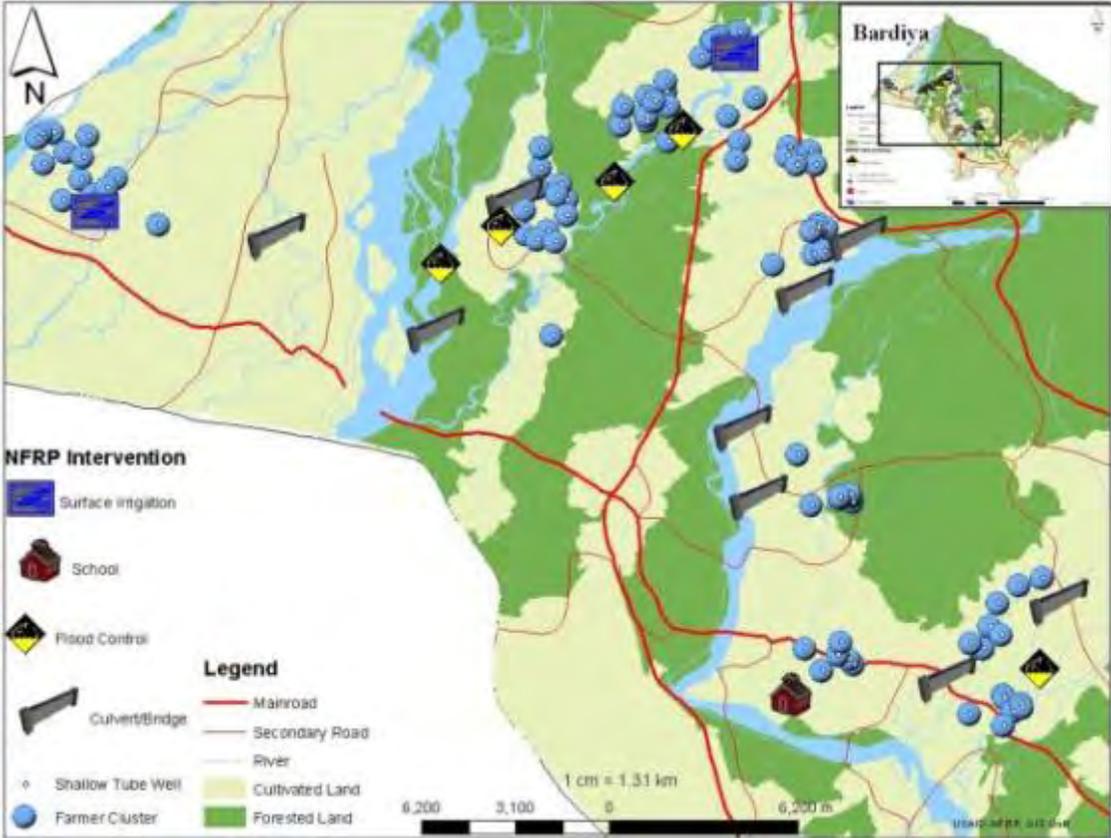
[Read more on USAID-NFRP’s nutrition and hygiene component.](#)

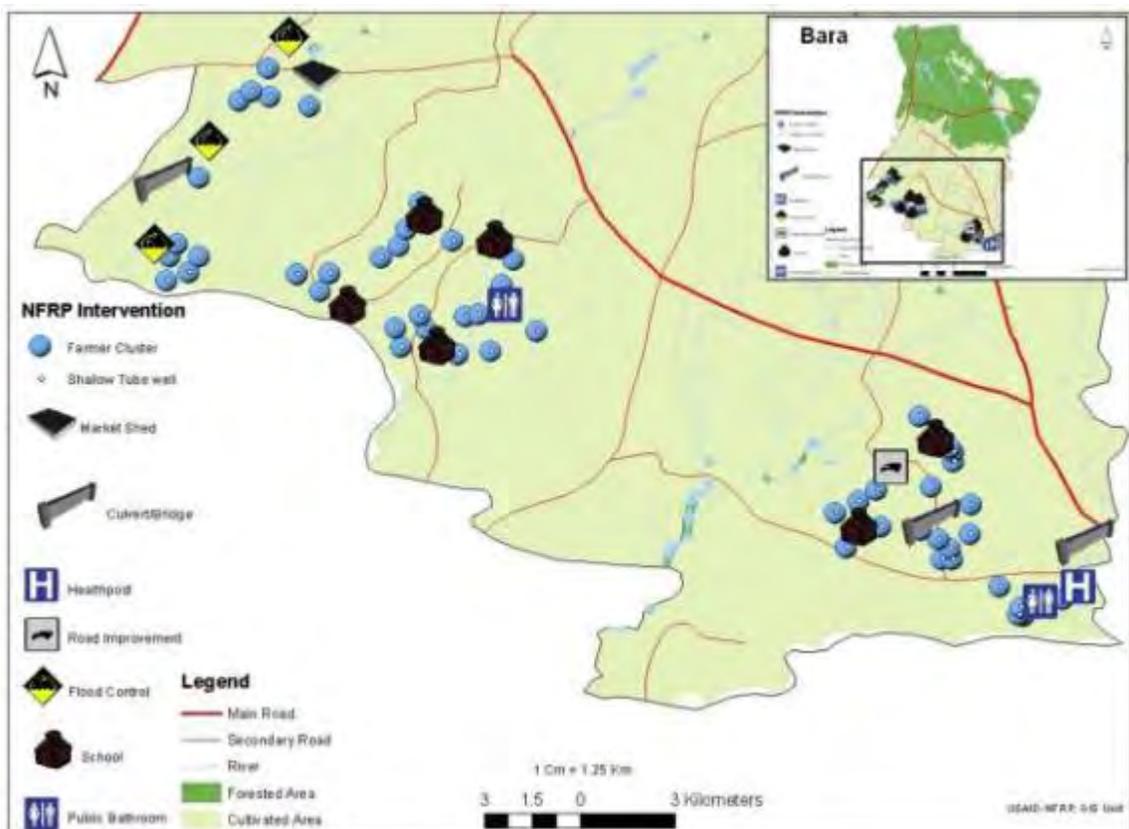
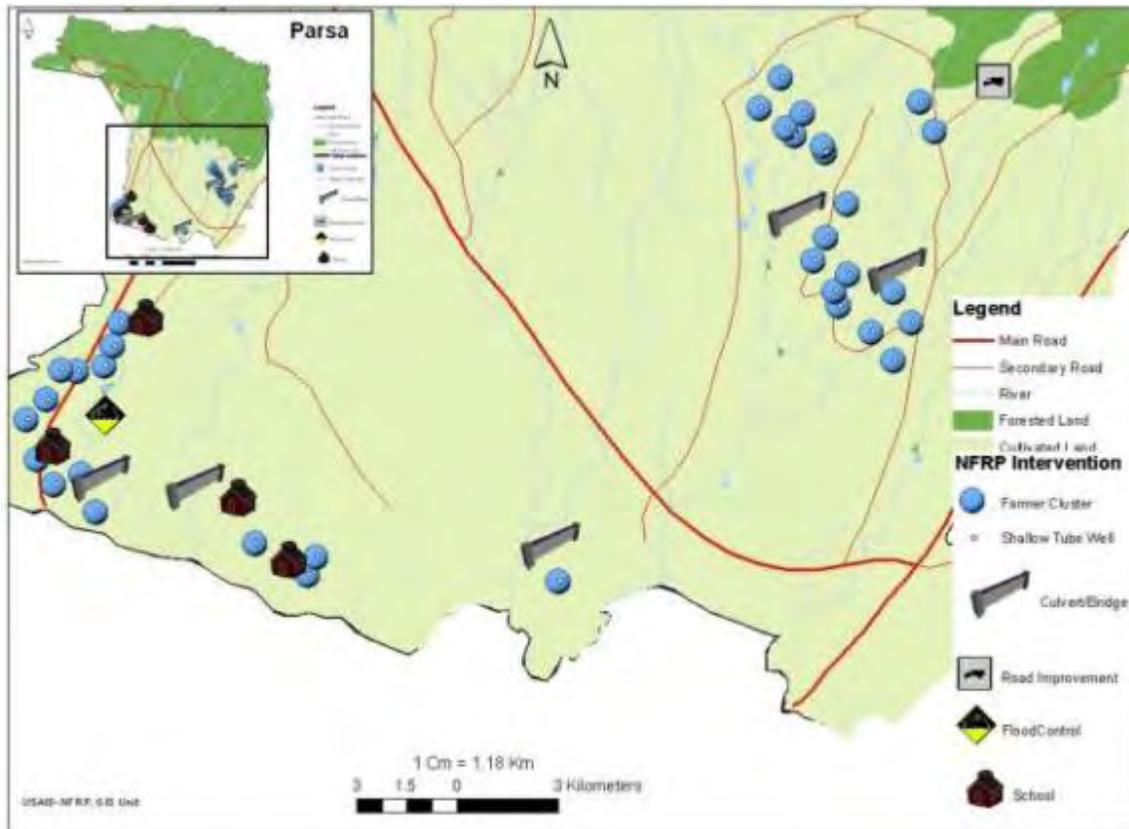
[*Published on AgriLinks blog, May 10, 2012.](#)

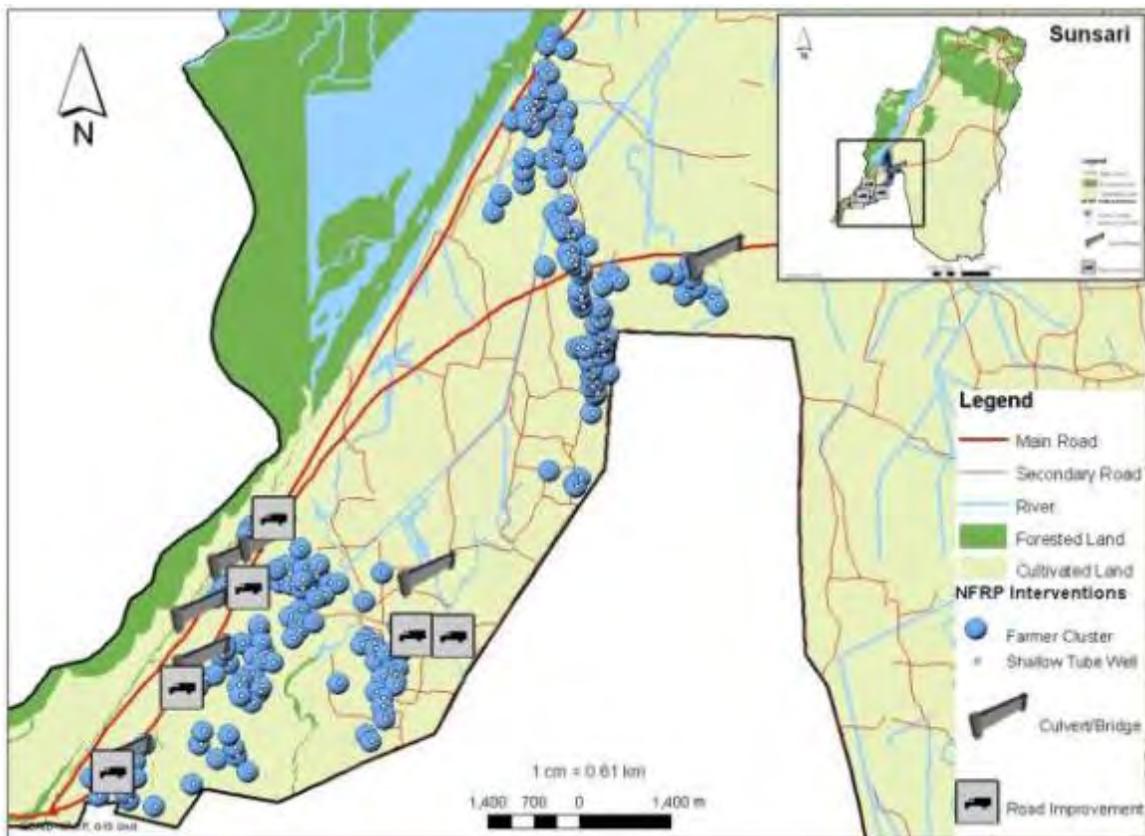
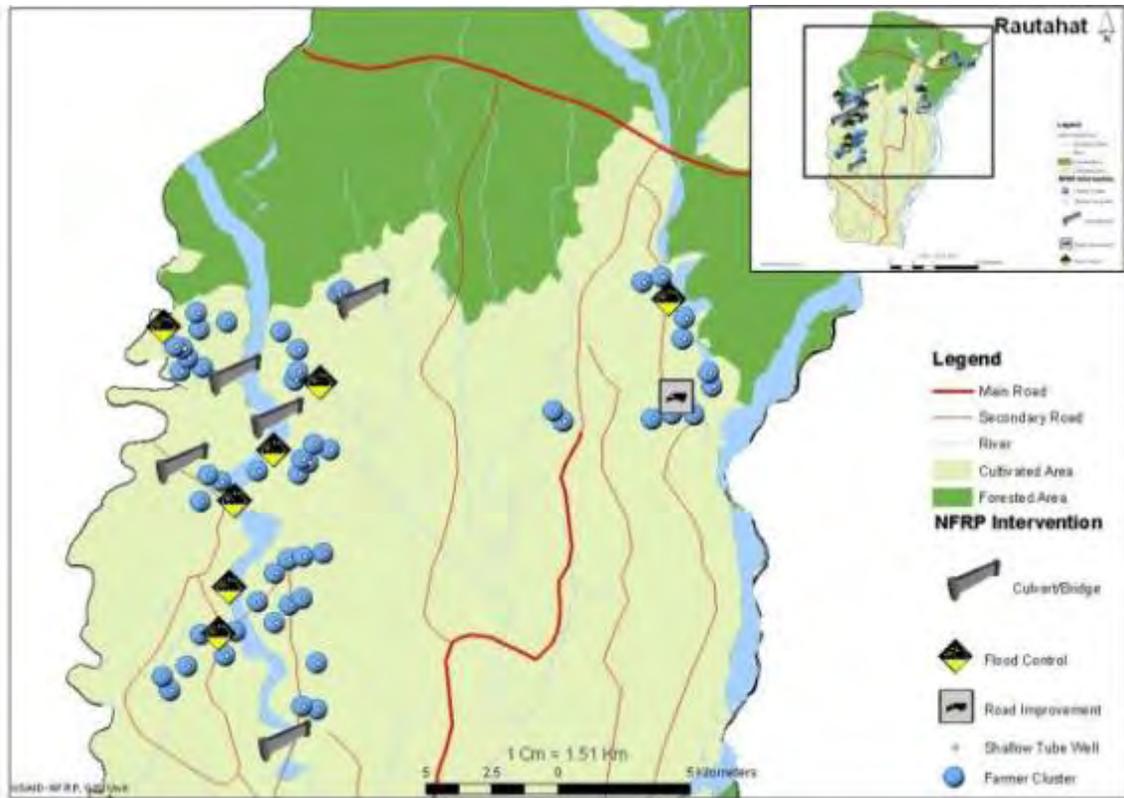
ANNEX III: DETAILED GEOGRAPHIC COVERAGE













Nepal Flood Recovery Program Final Report



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