

Digital Green Agriculture-Nutrition Convergence: Final Report

The World Bank's South Asia Food and Nutrition Security Initiative

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BACKGROUND

The South Asian region has the highest rates of hunger in the world. According to one estimate, 336 million people (nearly 23 percent of its population) are routinely hungry and new threats are emerging to intensify the situation.² The challenge of hunger and undernutrition in South Asia is complex and has many causes; it must therefore be met by a variety of cross-sectoral interventions. The South Asia Food and Nutrition Security Initiative (SAFANSI), supported by the World Bank and the UK's Department for International Development (DFID), aims to foster cross-cutting actions that will lead to measurable improvements in food and nutrition security.

Recognizing that an effective way to ensure food and nutrition security is to explore the interconnections between agriculture and nutrition, the SAFANSI Trust Fund supported the promotion of nutritional practices as part of an existing agricultural extension program among farming communities in Bihar, India. This pilot was conducted in partnership with the Bihar Rural Livelihood Promotion Society (also known as "JEEViKA"). The World Bank's Food and Agriculture Global Practice, under the supervision of Eija Pehu (Science Adviser) and supported by Terhi Havimo (Junior Professional Officer, Innovation), partnered with Digital Green, an international organization that specializes in using videos produced by communities, to help communities improve the efficacy of communications intended to change behaviors. Digital Green was already

working with the Bihar Rural Livelihood JEEViKA, which is run by the Government of Bihar, to use its approach to share agricultural knowledge among self-help groups of women that it had mobilized across more than 2,000 villages in the state. Through SAFANSI, Digital Green conducted a pilot in 42 of these villages in three Bihar districts to evaluate the feasibility of integrating nutrition information into this existing agricultural program.

Digital Green's pilot focused on investigating how locally produced videos could increase community knowledge and adoption of improved agricultural and nutrition practices. These videos have the potential to strengthen agricultural university curricula by their context-specific practical nature.



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APPROACH

The Digital Green approach is an innovative, technology-enabled means of behavior change communication that is cost-effective and scalable and brings together researchers, development practitioners, and community members to produce and share locally relevant information. Digital Green uses video as a basis for disseminating best practices. The medium is optimally designed for communication aimed at changing interpersonal behavior among smallholder farmers because it overcomes challenges related to illiteracy and is an intuitively accessible technology, especially when local farmers convey the advice and information in the video.

Although video provides a point of focus, it is people and social dynamics that ultimately make Digital Green work. Local social networks are tapped to connect farmers with experts; the thrill of appearing on video motivates farmers; and social cohesion is leveraged to minimize the distance between teacher and learner.

The Digital Green approach operates through a hub-and-spoke model in which nongovernmental organizations

and public sector agencies collaborate with Digital Green to train community intermediaries to produce and screen locally tailored video content to social organizations, primarily women's self-help groups. In a controlled evaluation, Digital Green's approach was shown to be at least 10 times more effective, on a cost per adoption basis, than a conventional approach to agricultural extension, with a sevenfold increase in the rate of behavior change.³

Digital Green's participatory video production and mediated dissemination approach can be layered onto any sector and location, using existing extension services to educate and trigger behavior change. Widely applied in the context of agriculture and livelihood, the Digital Green approach is also being piloted in the health and nutrition domains.

OBJECTIVES

The objectives of Digital Green's involvement in the project were as follows:

- To develop community-based instructional videos on a nutrition topic (including food preparation,

dietary diversity, crops rich in vitamin A, and kitchen gardens) to enable access to and adoption of best practices by the community members

- To enhance and promote knowledge management platforms that enable a wider audience, including agricultural universities and other organizations, to use these instructional videos

OUTCOMES

Objective 1: To develop community-based instructional videos on a nutrition topic (including food preparation, dietary diversity, crops rich in vitamin A, and kitchen gardens) to enable access to and adoption of best practices by the community members

Digital Green identified and developed instructional community videos around agriculture and nutrition and tested these in collaboration with JEEViKA to help promote nutrition best practices through the government of Bihar's existing extension advisory services in target rural areas. This intervention complemented JEEViKA's existing Community Health and Nutrition Care Centers (CHNCCs) for pregnant and lactating women during their first 1,000 days after childbirth. Digital Green was already working with JEEViKA in more than 2,000 villages to exchange agricultural knowledge among the self-help groups that it had mobilized. Through the SAFANSI project, Digital Green conducted a pilot in 42 of these villages in three Bihar districts—Gaya, Khagaria, and Muzaffarpur—to evaluate the feasibility of integrating nutrition information with this existing agricultural program.

Defining topics and producing videos

Digital Green had previously partnered with the Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project, funded by the U.S. Agency for International Development October 2012–October 2013, on a pilot intervention in 30 villages in Keonjhar District, Odisha. The goal of the pilot was to test the feasibility of leveraging the Digital Green approach for agriculture to promote behaviors and care practices related to maternal, infant, and young child nutrition, including child feeding, care during pregnancy, and hand washing. Under the pilot project, videos were made on the following topics:

- Benefits of washing hands with soap

- Importance of the first 1,000 days
- Importance of iron and folic acid tablets
- Maternal diet during pregnancy
- Maternal workload during pregnancy
- Importance of exclusive breast-feeding
- Managing exclusive breast-feeding by working mothers
- Introduction of complementary feeding for the baby after 6 months
- Age-appropriate complementary feeding for babies 6 to 24 months
- Importance of eating a diverse diet

SPRING's feasibility study⁴ revealed that Digital Green's approach was effective in disseminating information on maternal, infant, and young child nutrition practices and showed the potential to trigger behavior change. Though it was conducted in a different location, the SAFANSI pilot conducted in Bihar was informed by the key messages and learning from the SPRING/Digital Green project.

The topics for the videos were selected by their relevance to the local agriculture and nutrition landscape, and the content of the videos was created specifically on themes related to agriculture and nutrition. For example, topics chosen included cultivating kitchen gardens to increase access to nutrient-rich vegetables and reduce chemical runoff into water supplies; better balancing maternal workload related to agriculture during pregnancy; improving dietary quality and diversity for women and children; and increasing the consumption of animal proteins,



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primarily milk and eggs. The following topics were identified that relate to both agriculture and nutrition:

- Nutritional garden
- Cultivation of vegetables in sacks
- Recipe for a nutritional sweet called “laddu”
- Nutritional value of moringa trees
- Linking with Community Health and Nutrition Care Centers
- Diet during pregnancy

Though not directly related to agriculture, other topics, such as the importance of personal hygiene and breastfeeding, were also considered from a more general public health and nutrition perspective given JEEVIKA’s interest in improving the nutrition status of the communities that it works with through a combination of means.

After these topics were identified, JEEVIKA’s district- and block-level staff produced storyboards in which characters were finalized and key messages were outlined. JEEVIKA’s health and nutrition manager worked on the storyboards along with the video resource persons (VRPs). JEEVIKA’s

health and nutrition program manager verified the technical accuracy of the storyboards, approving them for video production. The technical messages to be delivered to the community through participatory videos were validated in both the projects by SPRING and JEEVIKA’s nutrition experts. In addition, Digital Green’s technical advisory committee at the national level looked at the technical aspects of the videos. The validation of the technical messages is critical in these health and nutrition videos, which also emphasizes the importance of the nutrition experts having up-to-date knowledge and how higher education plays a vital role in providing that knowledge. This was also the impetus for the pilot on education curriculum that was conducted under SAFANSI.

Building the capacity of communities to produce and disseminate videos

Digital Green had already trained JEEVIKA resource persons from the communities to produce videos related to JEEVIKA’s agriculture and livelihood-related programs. VRP teams in Bihar’s Gaya, Khagaria, and Muzaffarpur Districts produced the nutrition-related videos under this project. The VRPs shot videos at locations such as CHNCCs,



Anganwadi centers,⁵ and primary health centers.⁶ The videos featured individuals (who provided formal consent for the filming) such as the CHNCC cook, JEEVIKA Saheli (contact person), auxiliary nurse midwives,⁷ accredited social health activists,⁸ Anganwadi workers,⁹ and women and their children from the community.

The VRPs reflected that producing the nutrition-related videos took longer than producing the agricultural videos because at times it was difficult to shoot videos at public health facilities (for example, CHNCCs, primary health centers) that tend to be crowded and because some topics (for example, immunization) required filming on site.

After shooting the raw footage, the VRPs edited the videos on JEEVIKA's district-level office computers. JEEVIKA's district-level nutrition experts then made a final check to ensure the integrity of the message from the previously approved storyboard was maintained. Links to the videos produced under the project are listed in the table on page 8.

Testing the videos through mediated video screenings at community forums

After producing the videos, feedback was collected from the community on each of the 15 videos produced under the pilot. In each village, the community resource person screened the videos among women self-help groups (SHGs). These SHGs were mobilized by JEEVIKA and are engaged in microcredit and savings activities. The SHGs were familiar with Digital Green's approach because they were already watching videos on a bimonthly basis pertaining to improved agricultural practices. As part of the screening process, the community resource person would pause the video at strategic points and engage the group in purposive and productive discussion on their understanding of the featured practice. The typical size of a group attending these screenings was 15 to 20. Small groups created an informal and intimate environment, enabling all members to interact, ask questions, and clarify their doubts. The cross-sectional nature of SHGs, which include pregnant and lactating mothers, mothers-in-law, sisters-in-law, and other peers, can be influential, especially for women, in being receptive to change their behavior on a particular practice. Though women SHG members were the primary target audience for the video screenings, men, including fathers, husbands, and brothers, joined at times as well, but less regularly.

The community resource person facilitating the video dissemination captured structured feedback from the viewers on each video. The videos were screened to a total of 104 self-help groups across the three districts (Muzaffarpur, Khagaria, and Gaya). Feedback received from the community is summarized below:

Strong message recall and comprehension

- Community members remembered key messages in the videos.
- The local dialect used in the videos was familiar to viewers.
- Community members said that the messages were clear. Some videos were screened more than once on demand from the viewers, for better reiteration of the messages.

"These videos give us valuable knowledge. We can do everything that is being said in these videos. Earlier, we didn't have this information. Our knowledge has increased

after watching these videos. —Babita Kumari, community member, 37 years of age, Khagaria District, Bihar.

Increased knowledge on health and nutrition practices

- Community members said that they learned about new maternal and child nutrition and health practices from the videos.

“These videos will increase the knowledge of the women in the community, which will improve their health and well-being.” —Reena Kumari, nutrition specialist, 32 years of age, Gaya District, Bihar.

“[The] videos increased our knowledge about nutrition and health issues. These videos should be shown to men also.” —S. Devi, JEEViKA Saheli, 30 years of age, Khagaria District, Bihar.

Sociocultural myths addressed

- Prevalent myths related to pregnancy and childbirth (for example, not eating pumpkin during pregnancy) were dispelled, and communities felt more informed about health and nutrition practices.

“[The] videos have dispelled our myths and misconceptions. Earlier, we used to think that food must be cooked on high flame, but after watching the video on cooking method we got to know that cooking on high flame adversely affects the nutrition content.” —Chandrani Bharti, JEEViKA Saheli, 27 years of age, Khagaria District, Bihar.

The feedback from individuals interviewed expressed that they had adopted many of the promoted behaviors, but given the limited scope and duration of the pilot project, it was unable to conclusively assess whether they had done so and would continue doing so over the long term. The pilot successfully demonstrated the feasibility of a technology-enabled platform for locally producing and distributing improved food and nutrition practices as part of an existing public extension system. So far, these videos have been disseminated to more than 2,000 community members that JEEViKA works with, and there is an interest in sharing the videos more broadly to the 1 million self-help groups that it works with across Bihar. The subjects of the videos were varied, including those primarily related to public health and nutrition behaviors and those in which agricultural messages were made nutrition-sensitive. The

stakeholders involved in this project are keen to see how the links between agriculture and nutrition, especially for women, can be strengthened and to rigorously evaluate the extent to which messaging, related to agriculture and nutrition, improves the nutrition security and health of the rural communities that we engage with.

Objective 2: To enhance and promote knowledge management platforms that enable a wider audience, including agricultural universities and other organizations, to use these instructional videos

On November 10, 2014, Digital Green organized a one-day consultative workshop in partnership with the World Bank and IFPRI to share the findings from this collaborative pilot as well as to showcase the final set of instructional videos. Leading experts, policy makers, and program implementers with rich and extensive experience in agriculture, livelihood, nutrition, and maternal and child health came together to (1) synthesize findings from the pilot projects funded under SAFANSI and develop appropriate tools and media for wider dissemination and adoption of agriculture-nutrition practices, and (2) review and make recommendations for the content and curricula of agricultural universities, other higher learning institutions, and farmers’ organizations.

The workshop sought experiences and suggestions on ways to enhance the quantity and quality of nutrition-related curricula in the state agricultural university system. The key findings of the two pilot projects funded under SAFANSI were discussed and reflected upon during the workshop with the intention that these knowledge products be adopted by state agricultural universities as part of their agricultural curricula.

The key recommendations that emerged from the workshop included the following:

- The agricultural and nutrition education system needs to be redesigned to be able to produce solution designers who can make linkages between agricultural production and choice of crops and livestock products to improve family nutrition and health.
- To reach rural communities, we need to think along the lines of developing “massive open courses,” both on- and offline, for training frontline workers as well

as communities on improved agricultural and nutrition practices.

- There is a need to understand dietary patterns and food and nonfood expenditures of rural households in order to educate communities about spending on nutrition.
- We need to review links between the capacity-building efforts of organizations implementing nutrition programs at a grassroots level and the educational curricula of agricultural universities to identify and develop synergies.
- Popular opinion and political will must be mobilized to mandate the government's responsibility for ensuring nutritional security to all.
- Agricultural education, research, and extension strategies should promote the goal of affordable, diversified, nutritious diets for all.
- The Government of India's recent policy to mandate corporate social responsibility should include a focus on nutritional security.
- Platforms such as Krishi Vigyan Kendras¹⁰ and Agricultural Produce Market Committee markets should be used as hubs for the dissemination of nutrition-related messages.
- Every village must have a nutrition ambassador who can advocate for agricultural production and planning with a nutrition lens based on local needs.

FURTHER INFORMATION

The outputs of this project, including videos produced and community usage data, are available on Digital Green's knowledge management platform at <http://digitalgreen.org/discover>. A video summarizing the processes involved in this pilot is available at <http://www.digitalgreen.org/blog/safansi-pilot-in-bihar/>. The report, presentations, and videos that were shared during the project's consultative workshop can be accessed at http://www.digitalgreen.org/events/#workshop_agnu.

Endnotes

1. Rikin Gandhi and Ritika Pandey are from Digital Green (<http://www.digitalgreen.org>).
2. <http://www.fao.org/3/a-i4030e.pdf>
3. Gandhi, R., R. Veeraraghavan, K. Toyama, and V. Ramprasad. 2009. "Digital Green: Participatory Video for Agricultural Extension." *Information Technologies for International Development* 5(1): 1–15. Available at <http://itidjournal.org/itid/article/view/322/145>.
4. http://www.spring-nutrition.org/sites/default/files/publications/reports/spring_community_led_video_miyen_india.pdf
5. Anganwadi—meaning "countryside shelter" in Hindi—centers were set up under the Integrated



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- Child Development scheme of the Ministry of Women and Child Development in each village to provide six services: supplementary nutrition, immunization, health checkups, referral services, preschool education, and nutrition and health education for adult women. For more information, see <http://wcd.nic.in/icds.htm>.
6. Primary health centers are the cornerstone of rural health care and are supposed to meet the health care needs of the rural population. Each primary health center covers a population of 1 million and is spread over about 100 villages. A medical officer, block extension educator, female health assistant, compounder, driver, and laboratory technician look after the primary health center.
 7. Auxiliary nurse midwives are associated with primary health centers and are supposed to cover a population of 5,000. In most cases, the accredited social health activists work under them.
 8. Accredited social health activists are community health volunteers who have been engaged under the mission for establishing a link between the community and the health system. An accredited social health activist is the first port of call for any health-related demands of deprived sections of the population, especially women and children, who find it difficult to access health services in rural areas.
 9. Anganwadi workers work out of the Anganwadi centers allotted to a population of 1,000, to bridge the gap between the person and organized health care, and to focus on the health and educational needs of children aged 0–6 years.
 10. Krishi Vigyan Kendras (farm science centers) are innovative science-based institutions established to impart vocational training to the farmers and field-level extension workers.

Videos Produced through the SAFANSI-Supported Project

Video Topics	Video Links
Nutritional garden	http://www.digitalgreen.org/discover/video/7285/
Cultivation of vegetables in sacks	http://www.digitalgreen.org/discover/video/7283/
Recipe for a nutritional sweet called "laddu"	http://www.digitalgreen.org/discover/video/7284/
Nutritional value of the moringa tree	http://www.digitalgreen.org/discover/video/7473/
Purpose of Community Health and Nutrition Care Centers	http://www.digitalgreen.org/discover/video/7269/
Diet during pregnancy	http://www.digitalgreen.org/discover/video/7279/
Documentation of the entire process of cooking at CHNCCs	http://www.digitalgreen.org/discover/video/7281/
Training a group of community members on hygienic cooking	http://www.digitalgreen.org/discover/video/7282/
Antenatal care	http://www.digitalgreen.org/discover/video/7265/
Postnatal care	http://www.digitalgreen.org/discover/video/7268/
Child immunization process	http://www.digitalgreen.org/discover/video/7266/
Family planning	http://www.digitalgreen.org/discover/video/7277/
Menstrual hygiene	http://www.digitalgreen.org/discover/video/7278/
Personal hygiene	http://www.digitalgreen.org/discover/video/7264/
Importance of breast-feeding	http://www.digitalgreen.org/discover/video/7267/

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