**Farming Health and Environment – a multi sector approach to reduce pesticide hazards in Nepal**

1. Objective and relevance

In line with the Sustainable Development Goals 3 “Good Health and Well-being” and 12 “Responsible Consumption and Production”, the overall aim of the proposed project is to create an environment in Nepal which enables a sustaiable use of chemical pesticides, with minimized harm to public and environment.

The objectives are to:

1. Enable the local government and farmers' cooperatives to enhance IPM compliance among farmers, spray workers, and retailers in Chitwan District, Nepal.
2. Establish consumer forums that advocate for pesticide free foods through lobbying among politicians and fellow citizens.
3. Define an operational strategy to prevent pesticide poisoning which has a multisector approach and can be adopted at the federal, provincial and municipal level.

The project objectives support the Sustainable Development Goals at various fronts, including social justice, and poverty reduction. Citizen’s rights to safe farming and food remains the central theme of the project. None of the proposed activities shall harm the environment, but rather improve it by reducing use of pesticide, for example; movements (land or air) shall be kept to minimal requirement. The project and stakeholders shall conform to safe environmental practices such as reduce, reuse and recycle to the best possible manner.

**Context and rationale for further efforts in the pesticide issue**

Pesticide use in farming is a serious but often ignored global public health issue (1). Due to irrational use and unsafe handling, the issue of pesticide is a growing public health concern in Nepal too (2). Of the total pesticides imported in Nepal, more than 90% are used in vegetable farming (3). Health problems associated with pesticide use include suicide attempts, poisoning from contaminated foods, unintended accidents, and fatal injuries. Pesticide use has also been linked to several acute and chronic health problems (4-6). According to recent data from the World Health Organization (WHO), an estimated 193,460 persons died worldwide from unintentional poisoning in 2012. Of these deaths, 84% occurred in low- and middle-income countries.. In the same year, unintentional poisoning caused the loss of over 10.7 million years of healthy life. WHO estimates that deliberate ingestion of pesticides causes 370,000 deaths each year (7).

For the first time in Nepal’s history, the issue of pesticide and its effect on human health has been stipulated in the National Health Policy (policy number 6.12, strategy 6.12.5, year 2019). The policy states that the state will control and regulate the use of pesticides in foods affecting human health (8). However, public health programs to materialize this policy have not yet been designed.

The project “Farming, Health, and Environment in Nepal (FHEN)” has been a collaboration between Nepal Public Health Foundation (NPHF) and International Centre for Occupational Health, Environment and Public Health (ICOEPH, a part of the Danish Society of Occupational and Environmental Medicine (DASAM) and Diálogos through the last eight years (2012-2020. FHEN aimed to improve the health of farmers and consumers by promoting healthy and sustainable food production in Nepal. FHEN mainly focused on the Chitwan District in Southern Nepal and has played a major role in putting spotlight on the pesticide issue through the project’s first and second phase (kan dette modige statement understøttes med data/udtalelser el lign – ellers er det gratis at sige). NPHF has successfully established itself as a leading organization to advocate for the issue of pesticide and health. FHEN had a unique feature of combining the agricultural field with the health field: healthy farm and healthy food**.** It has adopted 'Participatory Development and Multisector Approaches' to all its work activities. As a result of FHEN, the Chitwan District has prioritized this issue which is reflected in the yearly district action plan. A pesticide minimization taskforce was formed with the facilitation by FHEN which worked to develop a pesticide minimization guideline and establish a pesticide residue measurement laboratory in the district. Furthermore, the community interventions like participatory Integrated Pest Management Farmer’s Fields Schools (IPM-FFS), training to different target groups, and researches have provided evidences and experiences to raise awareness and perform advocacy. These activities and interventions were based on research assessing the magnitude of pesticide use, perceptions, and practice of farmers, spray wokers, and retailers on safe handling of pesticides, extent of health effects experienced by farmers, and preparedness of the health sector to handle the pesticide poisioning cases.

Achievements of FHEN thus far have raised expectations and added responsibility to NPHF and its partners in the local and national context. Furthermore, review and evaluation of phase I and II indicated the need and importance to transfer the experiences gained in Chitwan District to other districts and all over Nepal. Besides the geographical expansion, some gaps have emerged through the knowledge and experience obtained during the previous projects.

Gaps which still needs to be covered include the following:

* the consumer forums were not empowered enough to voice on the issue of pesticide
* the agro-market sector – which is an important determinant of pesticide use was untouched
* the advocacy had to be limited mainly to the district level

Hence, during the present proposed project, we intend to reach unreached farmers, pesticide spray workers, and retailers of the district (not covered through previous phases) and would shift the responsibility more to the local governemnt and cooperative farmers’ organizations, and focus on demonstrating a few villages of Chitwan as role models (**objective 1**); empower consumer groups and other agents-of-change such as school teachers, health workers and market places (**objective 2**); and scale-up the core spirit of 'Pesticide Minimization Movement' to provincial and federal level by engaging multisector stakeholders (**objective 3**).

During FHEN, training and education materials were developed , advocacy was practiced at the local level, and networking was developed at different levels of the system. Thus, we expect for the proposed project, that these experiences gained from Chitwan will provide ample scope and opportunity to reach out to a larger audience and national policy makers.

**Geographical and socio-economic context of Nepal**

Nepal is situated between India and China and has a population of 28.9 million of whom the majority lives in rural areas. The annual population growth is 1.35%. The main project area is Chitwan District, one of the inner Terai districts in the Bagmati, Province 3 of Nepal. It covers an area of 2,238.39 km2, and in 2011 had a population of 579,984 people. Chitwan has pocket areas for commercial vegetable cultivation, coupled with easy availability of pesticides. Agriculture has been the primary source of income for 75 percent of the population of the district. It is one of the highest vegetable growing districts of Nepal and there are 4000-5000 active commercial vegetable farmers. There are 630 registered Farmers’ Cooperatives in Chitwan. There have been projects in Nepal focusing on Integrated Pest Management (IPM), with the purpose of reducing pesticide use. However, the collaboration with ICOEPH/DASAM and Dialogos is the first project to combine a focus on reducing pesticides with awareness raising and advocacy amongst consumers, farmers, pesticide dealers, and district as well as national stakeholders, for a more sustainable farming production combined with reduced health risks.

Political context: Nepal has undergone a historic transition from a monarchy towards a federal and secular republic after the local election in 2017. The new federal set up consists of 7 new state provinces – 481 rural municipalities, 246 municipalities, 13 sub-metropolitan cities and four metropolitan cities. The Rural Municipalities have 5 to 21 sub-municipal units called Wards, while the Municipalities including the sub-metropolises and the metropolises have 9 to 35 Wards. Decentralization of authority and decision-making from central to the provincial and local levels of government has led to renewed enthusiasm and vigor towards development in all sectors including agriculture.

**The farming sector at the frontline of pesticide exposure (Objective 1)**

The farming sector is the backbone of Nepalese economy and the main source of food and income. Most Nepalese farmers are subsistence/small-scale farmers and therefore dependent on farming related activities for their livelihood. Pesticides form an important part in increasing farming production for controlling pests in plants and diseases in animals. The use is particularly high in the lowlands including the project area with intensive commercial farming of vegetables, tea, and fruits. The import of pesticides to Nepal has increased considerably over the last years. Between 2012 and 2018, import of pesticides increased from 1,636 metric tons to 2,271.7 tons (9).

Farmers and pesticide spray workers face a particularly high risk of pesticide poisoning due to the added risk from their occupational exposure. Previous research in the project area has shown that the majority of the farmers spraying pesticides complained of acute health problems like headache, muscle twitching/pain and respiratory problems (10). The majority of farmers in Nepal still apply hazardous pesticides because they think it will have more knock down effect. Further issues related to the use of pesticides were overdoses, frequent use, not following Pre-Harvest Interval (PHI) time, using them without any technical advice, and preferring broad spectrumpesticides. Practice towards safe storage and disposal was also found poor .

**Food consumers as agents of change (Objective 2)**

Food consumers face a potential risk of pesticide poisoning due to the presumably high level of pesticide residues, especially in vegetables and drinking water. Acceptable daily intake (ADI) and Maximum Residue Limit (MRL) of pesticides is not properly established in Nepal. At the same time, consumers do not have adequate knowledge about pesticide use in foods and hence they prefer shiny, off season and attractive agricultural produce. Consumers are considered an important group of change agents as they hold the potential to bring about change in societal perceptions and practice towards healthy and safe foods production in Nepal. In Nepal, consumers groups are organized at both the national and local level. They are activevly working for consumers rights issues including safe and healthy food products (11). Some of the forums are also active in market monitoring and surveillance (12). The proposed project shall forge alliance with them and develop common agenda and programs to reach out to policy-makers and public. Besides, we shall also be partnering with other drivers-of-change such as health workers, teachers, and market-places, to empower these groups to communicate harms and mitigation strategies related with pesticides.

**Attempts towards a rational use of pesticides and the need for sustained advocacy (Objective 3)**

Nepal is a signatory of international conventions related to pesticides such as the Stockholm Convention, Basel Convention and Rotterdam Convention. The Pesticides Act was established in 1991 and rules in the act were framed by means of Pesticide Regulation in 1993. The act and rules have been effective since 1994 aiming at the implementation of national and international rules and regulations on pesticides. The Federal Parliament has enacted the Pesticide Management Act-2019 to regulate the production, formulation, export, import, storage, sale and purchase, transportation, and use and disposal of pesticides to minimize the bnegative effects to human, animal health, and environment. This act came into force from Aug 30, 2019 but the regulation is yet to be formulated. Nevertheless, making the conventions and control mechanisms functional in the farming districts is lacking from the authorities, and little interest is given to these issues by the farmers and consumers due to the lack of knowledge and awareness.

The Ministry of Agriculture and Livestock Development has the overall responsibility of executing the UN promoted Integrated Pest Management (IPM) strategy introduced in 1997. IPM is considered an effective, economically sound and environmentally sensitive approach to pest management that relies on a combination of common-sense practices that enhances, rather than destroys, natural controls. IPM is the concept on which the proposed project builds, and thus, supports the official policy about pesticides.

It is suggested that the main causes to poor management of pesticides in Nepal are quality ensurance, consumer safety and a weak controlling mechanism for proper disposal of expired pesticides as systematic disposal mechanisms are non-existing and therefore storage of obsolete pesticides is not always well managed, obviously posing serious health threats. Illegal trading due to open borders, especially with India, is also an important matter as is the low import and limited availability of alternative pesticides.

No regulation has been formulated on the basis of the Pesticide Management Act 2019 as mentioned earlier. Furthermore, public health programs to materialize the National Health Policy 2019 are yet to be outlined and executed.

**Pesticides as a health sector issue**

Prevention and treatment of pesticide poisoning cases, whether intentional or unintentional, is poor in Nepal due to ack of relevant skills among health personnel. A study from ‘Nepal Drug and Poison Information Center’ found that suicidal poisoning is a major public health problem in Nepal and that pesticides accounted for more than half of the cases (13). Apart from acute poisonings, chronic diseases like cancer, infertility and injuries on the fetus are other serious negative health consequences of pesticide use due to its carcinogenic, onchogenic, teratogenic and mutagenic effects . The majority of pesticide poisoning cases are handled at peripheral levels of health care units such as health posts and district hospitals, where the treatment of poisoning cases is based on individual level skills, knowledge and experience. There are no standard protocols for handling such cases immediately after arriving in the emergency ward. Also, the existing health care education is not effectively managing the poisoning cases, thus making it difficult for health personnel to recognize and manage pesticide poisonings as well as to provide an actual picture of the prevalence of pesticide poisonings and their characteristics.

The third Nepal Health Sector Implementation Policy (NHSP-III) with the Plan 2015-2020 is the basis of all health programs in the country. This plan focuses on four main areas: Equity, quality, sustained reform, and multi-sector collaboration. Besides the major issues of infectious diseases, reproductive health and nutritional health issues, NHSP-III also incorporates upcoming health issues such as non-communicable diseases and - of relevance for the proposed project - occupational health. Thus, the project will take place in a political environment where there is a will to work with the poor and occupational health has been put on the political agenda. This will form an important background for advocacy activities in the proposed project.

With the revised Nepal Health Policy 2019, the health sector is moving further towards establishing health as a fundamental human right of its citizens. The health service delivery of Nepal is broadly categorized into primary, secondary, and tertiary. The primary care health facilities are staffed by paramedics and medical graduates, while secondary and tertiary care hospitals have specialists and super-specialists, respectively. Each primary health facility usually has, nine (but sometimes more) Female Community Health Volunteers (FCHVs) to serve a catchment population of 5,000–10,000 people. The FCHVs are part-time volunteers who provide basic services and health education. Motivating factors for FCHVs typically include nonfinancial incentives like a clothing allowance and community recognition.

In conclusion, the use of pesticidesthis is an issue which affects all sections of populations, society and hence needs to be addressed by diverse sectors. The proosed project aims to build on the experiences gained from FHEN in Chitwan and disseminate successful strategies, interventions and learning to other parts of Nepal and advocating for an enabling structure for reduced use of chemical pesticides at different levels of government in Nepal.

The partnership/collaborators

NPHF has with quite some success partnered with the local govenment and other stakeholders. These local level partnerships are deeply rooted, and have thrived on mutual trust and goodwill. NPHF through the FHEN project has obtained a distinct reputation of an issue-driven organization. The project successfully shouldered together many activities with the local government, especially with the District Coordination Committee that coordinates different activities of the municipalities within the Chitwan district. FHEN has played a critical role in bringing together the various local stakeholders and act for the cause of pesticide minimization. Not only the officebearers, the project has been able to penetrate down to the individual target groups, and win their trust and praise.

Indeed, there were many challenges faced by FHEN. Pesticides was not a priority issue for many local governments and they had other competing priorities. Another reason for this was that the introduction of the project had coincided with the starting of their terms as officebearers after the first local level election in several decades. Therefore, positive and continous assertiveness was required from the project in order to make them prioritiize the pesticide issue. Another challenge was follow-up with the various local stakeholders. As the project worked with several municipalities which were spread out, expectations of more frequent meetings, for example by the farmers or officebearers, could not be met as there were not many FHEN staffs, and there were other activities that these staff had to cover. Nonetheless, the project staff kept in touch via active telephone calls and were available whenever they were required.

Fostering research by partnership with the national Agriculture and Forestry University, which is situated in Chitwan district, did not materialize despite persistent efforts because of the academic politics that hindered any substantial collaboration between the university and FHEN. To compensate for this, FHEN undertook a research project on its own – on exposure to pesticides and its effect on pregnancy outcomes (those exposed during pregnancy had two times odds of having adverse pregnancy outcomes such as stillbirth) (14).

NPHF has long standing partnerships at provincial and federal levels, but there have not been many platforms where FHEN was at the centre. However, two central level activities – National Conference on Pesticides and Health and MultiSectoral Advoacy Webinar – have played immensely impactful roles in breaking ice at the central level.

FHEN has with success made positive impact on its target groups – mainly through trainings, awareness activities, and advocacy. For example, the majority of the farmers after the training were encouraged to extend their farming to include commercial vegetable farming following the IPM principles. According to the follow up records, 32 farmers i.e. 21 percent of the trained farmers are now preparing waste decomposers and applying them. About 78% of farmers had prepared botanical pesticides and used traps to manage the insect and pests (15). These farmer/groups also amplified dissemination of the IPM and it is expected that this kind of activity can bring multiplier effects in the society including other groups. Altogether 148 farmers had been trained, and the majority of the farmers are practicing IPM. Likewise, most of the 21 trained spray workers began to notice the label of pesticide and indications. Likewise, most of the trained pesticide retailers started to recommend the use of traps and safe label pesticides to the farmers. Retailers themselves started to use mask and gloves while staying in retailer shops (16).

After our trainings, most of the health facilities have put IEC materials in their waiting room for patients and visitors to read. Also they have maintained the recording system of pesticide related cases. The history taking process has improved where health workers ask more about the causes of symptoms that could be associated with pesticides. Importantly, all seven municipalities of Chitwan District have allocated the budget and designed programs for pesticide minimization under regular annual programs (17).

Diálogos/DASAM have collaborated with NPHF since the establishment of NPHF in 2010, with a focus on experiences in the fields of occupational and environmental health from the pesticide projects in Bolivia and Uganda. Both Dialogos/DASAM and NPHF Nepal are well matched partners in terms of their similar concerns, commitments, and credibility in the area of public health. The partnership between DASAM and NPHF is solid and the partners have sufficient capacity and resources in relation to minimizing the use of pesticides and preventing pesticide poisoning.  There has been a mutual learning between DASAM and NPHF regarding the way of conducting this kind of project (civil society-based).

Through the collaboration, the technical skills of NPHF have been increased, like that of the personnel through the courses offered in Nepal and Denmark. Project visits and evaluations using different approaches have been benefitting both organizations. We have planned and published several scientific studies that have benefitted mutual partnership and knowledge. This sharing of knowledge and collaboration is going to continue in the proposed project through training sessions on project relevant issues virtually and in Denmark and/or Nepal, through mutual planning of documentation studies and dissemination of the results in public and scientific publications, conferences and through the press.

For the proposed phase, newer strategic partnerships shall be developed at all levels. These shall include key line ministries at central and provincial governments that deal with health, agriculture, and environment; the apical National Planning Commission that have the authority to tackle multi-sectoral issues. We shall strengthen collaborations with agriculture and health related apex research organizations and universities. Consumer rights forums and youth forums shall be another group of partners. We shall tie up with important External Development Partners such as FAHO and WHO for advocacy purposes. Organic farmers including pioneers and flag-bearers of the organic movement shall be important partners. Finally, we shall actively engage with market management and commerce stakeholders, including farmers’ cooperatives. These partnership – depending on the activity- shall be at different levels. For example, we shall be partnering with the central level consumer forum for advocacy, whereas it shall be for both cosumer awareness and advocacy the district level.

Further references regading achieved results, webinars and evaluations can be forwarded on request.

**DASAM (and Dialogos)**

Danish Society for Occupational and Environmental Medicine (DASAM) was founded in 1980 and hosts a membership of 170 specialists in occupational and environmental health. In 2004, a subcommittee for international collaboration called International Centre for Occupational, Environmental and Public Health (ICOEPH) was created through which DASAM coordinates its international collaboration. The mission of the committee is to facilitate low-income countries in ensuring occupational and environmental health by means of advice and promotion of focus on occupational and environmental health issues. DASAM has conducted development activities with CISU grants in Nepal, Ghana, and Tanzania.

DASAM has been supporting the Danish NGO Diálogos and its projects on prevention of pesticide poisonings since 2004 in Bolivia, Nepal, and Uganda, and on the Philippines to reduce mercury-pollution from small-scale mining. DASAM assisted with the elaboration of adequate teaching materials, informative materials, and programs, as the revision of curricula in relevant training courses, educational programs, and scientific studies documenting the magnitude of the challenge and the effect of interventions etc. in Diálogos’ projects during the last decade. These experiences have been used for public awareness rising, advocacy, and information activities in Denmark and abroad on national and international conferences, through teaching, different medias and publications. The field of occupational and environmental health is part of DASAM members’ profession and daily work in Denmark where the members are working to promote healthy working conditions in Danish workplaces. DASAM has a very solid local knowledge and network in Nepal and apart from this DASAM members are supervising Nepali students and Danish students on thesis work at university level with data from Nepal. DASAM sees a need and an obligation to help improve workers’ health at a global level because the Danish experiences with establishing a decent working environment, workers’ rights and sustainable production have been developed over many years and cost many hard negotiations. We believe that by sharing such experiences we can facilitate a process of improving workers’ health in low-income countries in close local collaboration with local colleagues.

The members of the working group in Denmark are specialists in occupational and environmental health, agronomy, anthropology, journalism, and public health science. They have extensive experience with project activities from their normal jobs in Denmark and from assisting in the occupational health and environment projects in Nepal, Bolivia, and Uganda.

The partnership with Dialogos goes around 15 years back, in this project the role of Dialogos is to take care of the administrative issues and handling of funds but supervised by DASAM that takes care of the technical management of the project.

**Nepal Public Health Foundation**

Nepal Public Health Foundation (NPHF) was established in 2010. It is a CSO with the mission to have concerted public health action, research, and policy dialogue for health development, particularly of the socio-economically marginalized population and with a goal to ensure civil society's pro-active intervention in public health. NPHF has a high level of professional knowledge both of the toxicological aspects as well as the aspects of communication/advocacy and how to involve local structures and support them.

NPHF is managed by a board of 7 highly skilled professional members, with a staff of 14 in the head office in Katmandu, and a satellite office in Chitwan District, with a staff of 6 persons, responsible for day to day activities in the project. There is an ongoing coordination between the offices in Kathmandu and Chitwan. Day-to-day activities of NPHF are carried out by the office headed by Executive Chief with monitoring visits from the central office and knowledge sharing visits conducted by members from the Steering Committee of the project. Many members and staff of NPHF have worked as senior government officers, employees of national and international organizations, and professors of universities, leaders of consumer groups, environmentalists, and human right activists. NPHF has a strong professional relationship with stakeholders and multiple government line agencies. Furthermore, NPHF works alongside community based organizations, people's health movements, other NGOs and private sectors. NPHF is one of the leading players in building Occupational Health and Safety services and knowledge network on Occupational Health and Safety in Nepal together with national authorities. NPHF has solid knowledge on health issues in local conditions and good experience in working with other civil society actors such as Female Community Health Workers, foreign donors and WHO. Over 50 health professionals are members. The executive board members are elected every five years by Annual General Meeting.

**Previous interventions**

The proposed project builds on the experiences gained through two former projects that ended in August 2020 as Phase I and II respectively and now stands as an independent project, where DASAM also partnered with Diálogos. Diálogos/DASAM has been in contact with NPHF since the establishment of NPHF in 2010, with a focus on experiences in the fields of occupational and environmental health from the pesticide projects in Bolivia and Uganda. By now we have nine years of experience of cooperation with NPHF and with working on farming, health and environment in Nepal, with good results. Both DASAM and NPHF Nepal are well matched partners in terms of their similar concerns, commitments, credibility in the area of public health. There has been a mutual learning process between Diálogos/DASAM and NPHF regarding the way of conducting this kind of project (civil society-based), mutual involvement, involving the best from both cultures, and experiencing the strength of the existing everyday networks in the field of farmer cooperatives, women’s groups, village-community-groups, etc.

The first project was approved with the good advice to put particular emphasis on securing relevant methods and strategies for local ownership. This has been done in the previous project period, where NPHF has demonstrated abilities working as a catalyst for the new democratic political structure despite facing the challenges of the new local governance structure, where the authorities has shifted from district to local level. NPHF’s catalytic role was most evident when it leveraged the multiple stakeholders at the district level to forge a district level task force that worked towards establishment of a Pesticide Lab in the vegetable market of Chitwan. The task force also drafted a district-level guideline on pesticides and IPM, that was even taken up by the province level government to pursue it further at their level. Similarly, NPHF played a catalytic role in formation of ‘IPM groups’ an an additional outcome of the Farmers Field Schools, which was an impropto decision of the participating farmers to carry out IPM farming themselves as well as to influence fellow farmers to do the same.

The new political and social leaders of the wards have provided an opportunity for the project to ensure local ownership. The staff managed the challenges of new coordination mechanisms with different stakeholders at different levels for advocacy-activities on local and provincial level. The experience of the previous cooperation, the knowledge, capacity and experience of NPHF in the backyard have fed constructively into the design of the proposed intervention. The legitimacy in relation to the target groups is high and they have a long track record in capacity building, as well as advocacy efforts with provincial and local governments for the development of pesticide minimization guideline and programs and as the advocate for installment of laboratory facilities to measure the pesticide residues in foods at Chitwan.

The proposed project will now emphasize to dessiminate good and successful practices of the previous projects to other districts of Nepal setting Chitwan as a role model and advocate to policy makers at the federal level to develop national policy documents on pesticide and health to address the issue through multisector approaches.

**Division of roles in project implementation**

There is clarity in the definition of each partner’s contributions, roles and areas of responsibility. DASAM, as a financial entity, has the responsibility of ensuring the proper execution of the project, and will participate in internal and external evaluation processes.NPHF, as the executing agency, has the responsibility of the daily management, implementation, monitoring, data collection and awareness raising as lobbying and advocacy. The NPHF team will be in contact with the DASAM project group in Denmark through emails and skype. NPHF has been active in the preparations of the proposed project’s interventions and the objectives. NPHF shall account for all funds received from DASAM. Agreements of responsibilities will be elaborated and signed by participants once the project is financed.

DASAM contributes with its experiences from Denmark and abroad with international networks on Occupational Health and Safety teaching and science, from which DASAM has gained a profound theoretical knowledge and practical experience when it comes to the unique Scandinavian Occupational Health and Safety model and its relevance to low-income countries. DASAM and Diálogos has a broad Danish civil society network, many years of experience from similar pesticide projects working together in Uganda and Bolivia aside from a long presence in in Nepal with project work in the health field, lately the “Farming, Health and Environment” project.

NPHF has a well-functioning organization that targets public health issues and how they can be resolved with development projects and science. NPHF has experiences from coordinating activities in the Nepali society including farmers and experience in handling donations from United Nations, the Government of Nepal and others.

**Target groups, objectives, strategy, and expected results (our intervention)**

The project aims to reach all the municiaplities of Chitwan District with more focus towards unreached areas. Basically, field level interventions will be targeted to the communities of 7 municipalities of Chitwan District and advocacy work would be emphasized to the district, province and federal levels of Nepal.

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| **Objective 1: Enable the local government and farmers' cooperatives to enhance IPM compliance among farmers, spray workers, and retailers in Chitwan District, Nepal** | | |
| **Primary target groups** | **Number** | **Criteria and justification** |
| Farmers for  Integrated Pest Management-Farmers Field School (IPM FFS) | 90 new farmers from new municipalities, not covered by FHEN project I and II)  90 new farmers in 3 groups by farmers cooperatives (after MToT), technical guidance by FHEN and local agriculture office  90 new commercial farmers  900 new peer/neighboring farmers of IPM farmers | 1. Gender: At least 50% female participants 2. Representation: Farmers will be selected from all areas of a ward 3. An inclusion approach will be employed to ensure participants from ethnic background and minorities 4. Status: Who is involved directly in farming in own or leased land 5. Who is currently using chemical pesticide 6. Who agrees to continue trainee for the whole training period, signing commitment letter 7. Has willingness to learn, practice about alternatives of chemical pesticides and share knowledge in their area/neighboring farmers. |
| Pesticide spray workers | All spray workers (daily wage laborers) - 35 in one group, 5 from each municipality of Chitwan District, | 1. Which wage worker has sprayed pesticedes the last 6 months 2. Poor, females, illiterates will be given priority 3. New pesticide spray workers not addressed by FHEN project I and II |
| Pesticide retailers | Pesticide retailers - 35 in one group, 5 from each municipality of Chitwan District, | 1. Registered pesticide retailers in the municipality 2. Larger sales will be given priority as they will be in reach of larger number of farmers 3. New pesticide retailers not addressed by FHEN project I and II |

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| **Objective 2: Establish consumer forums that advocate for pesticide free foods through lobbying among politicians and fellow citizens** | | |
| **Primary target groups** | **Number** | **Criteria and justification** |
| Consumer forums | Consumer forums operationally defined as different groups from different sectors as ward offices, farmers' cooperatives, village commiitees, market stakeholders, school teaches, students, health workers and community volunteers. These groups serve as potential catalysts who can bring positive change in their action through project interventions and also they have the role and power to reach larger communities and advocate to local politicians and fellow citizens for pesticide free foods. | |
| All ward offices of Chitwan (70) | These are the grassroots organizations under government system and all citizens of a ward visit ward offices for administrative and service purposes. They can receive information from ward offices if ward officials are oriented. Also ward offices are authorized body to prepare ward level planning and therefore could potentially address the issue of pesticide. |
| Farmers' cooperatives/groups (30) | Usually, in Nepal and in Chitwan too, most of the farmers are engaged in cooperatives. They gather for monthly meetings and discussion on the sales of agriculture products. Therefore empowering cooperatives could make them resource centers to influence their members for rationale use of pesticide and advocate for pesticide free foods to local politicians. |
| Village/tole committees (35) | These are voluntary social groups in villages who work with regards to community welfare like agriculture fertilizers management, raise awareness about health hazards, clean its communities mobilizing all households. Therefore the agenda of pesticide could be internalized and raised by them as well. |
| Agriculture market places (10) | The criteria is to select the 10 largest agriculture markets of Chitwan which have more number of buyers. We will distribute and dissiminate information about health hazards of pesticides and healthy choices through these forums to reach larger consumers (e.g. Hoarding boards). |
| Schools of a municipality (30) | School is a genuine platform for students to learn new knowledge, acquire skills and get inspiration to change behavior. They are playing a crucial role in educating communities and driving social campaigns. Pesticide use in the communities is also one of the important social issues, is now very rampant and threatening human and environmental health. Suicidal attempts by adolescents are also increasing with the use of pesticides since they are easily accessible at home and can also be bought from the market without prescription. Thus, schoolteachers could be one of the major information sources to reach the students, their parents and wider communities to make them aware of adverse effects of pesticides and its safe handling. This training would also motivate teachers to practice pesticide free farming by themselves. |
| Health workers (60 from 60 health facilities) | NPHF 2017 study showed health workers are less oriented to the problem of pesticides and therefore more likely to skip interrogating about pesticide exposure while taking clinical history. This could be one of the reasons why farmers receive only short-term symptomatic treatment and continue to repeatedly face the same health problems due to exposure to the hazardous chemicals.  Therefore, it is critical that health workers are aware and skilled in identifying, managing and preventing pesticide exposure including acute poisoning. Addressing health workers is expected to make them pay more attention to the issue and about their crucial role in counseling patients/consumers for safe handling of pesticides too  The previous projects had trained only 25 health workers. Therefore, additional 60 would help to reach all remaining health facilities of Chitwan District. |
| Female Community Health Volunteers (FCHVs) – 90 | FCHVs are volunteers, selected by the community, all females. The FCHV play a crucial role in the health system, mainly responsible for preventive care and health education at the grassroots. FCHVs could be one of the major information sources to reach to wider communities to create awareness of safe handling of pesticides. Additionally, most of the FCHVs are also engaged in farming. Therefore, this training would also help them to learn about safe handling of pesticides and motivate them to adopt safe practices. The training is also expected to help them to influence mother groups and wider communities to learn about this important issue.  This project would provide training to new FCHVs from new working areas not addressed by FHEN project I and II. By this, we would be able to reach all FCHVs from the district. |
| **Secondary target groups** | | |
| Consumers | Direct/indirect audiences (around 50000 through mass medias) | |

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| **Objective 3: Define an operational strategy to prevent pesticide poisoning which has a multisector approach and can be adopted at the federal, provincial and municipal level** | | |
| **Primary target groups** | **Number** | **Criteria and justification** |
| 7 remaining municipalities of Chitwan District | At municipal level | The municipality authorities (government officials from agriculture, health, education and environment departments-more relevant for this project) are the catalysts and the authorized body to coordinate with and implement project activities in the district. Therefore, it is necessary to engage them in the planning, monitoring and evaluation process. The purpose is also to empower and capacitate them to endorse and implement pesticide minimization guideline and programs in the district independently when this proposed project phases out. |
| District Coordination Committee Office (DCC), Chitwan | At district level | DCC, Chitwan is a coordinating local body, which guides all the municipalities in the district, so it will be engaged through out the process of project implementation. Also it is a formal body to advocate to provincial government on local issues (same as above - partner) |
| Province 3, Bagmati, Nepal  MoLMAC and MoSD (includes health, education and environment sections) | At province level | The project aims to demonstrate the learning from grassroots to feed to the policy and programs at provincial level through training and advocacy. |
| MoHP, DoHS, NPC, PQPMC, DFTQC, NARC, Market stakeholders, Consumer rights association | At federal level | Committed to develop multisector action plan to reduce chemical pesticide (interaction and consensus were built in FHEN II to work jointly) |
| **Secondary targetgroups** |  |  |
| 13 districts of Province 3 |  | As impact of work at province and federal level is expected to benefit the national health system |
| All over Nepal (7 provinces) |  |  |

**Note:** MoHP: Ministry of Health and Population; DoHS: Department of Health Services; NPC: National Planning Commission; PQPMC: Plant Quarantine and Pesticide Management Center; DFTQC: Department of Food, Technology and Quality Control; NARC: Nepal Agriculture Research Council

**Expected results (Logical Framework)**

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| **Objective 1: Local government and farmers cooperatives are capacitated to enhance IPM compliance by farmers, spray workers and retailers in Chitwan District, Nepal** | |
| **Indicators** | **Means of verification** |
| * 1. Levels of Knowledge, Attitude and Practice (KAP) of farmers, spray workers and pesticide retailers increased by at least 50% and documented   2. Training materials has been adopted in 7 farmers cooperatives and at District level for continued training in the District   3. A plan for regular training by farmers cooperatives is adopted by farmers cooperatives and agricultural department in the District | Pre-post test  Activity and follow up reports  Observation checklist  Evaluation report |

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| **Indicator 1.1** Levels of Knowledge, Attitude and Practice (KAP) of farmers, spray workers and pesticide retailers increased by at least 50% and documented | |
| Outputs | Activities |
| **For farmers** | |
| 1.1.1 Agriculture officers and local cooperatives are coordinated for IPM-FFS, pesticide spray workers and retailers training | 1.1.1 Orientation and planning meeting with local stakeholders (16 at all 7 from 7 local cooperatives, 7 agriculture officers from the municipality, one from agriculture knowledge center, one from pesticide retailers organization) |
| 1.1.2 Farmers are skilled and equipped to practice IPM methods in farming | 1.1.2 Training, equipment support and seed distribution to farmers in partnership with co-operatives (3 FFS) (30 farmers\*3\*22 days) |
| 1.1.3 Previous trainees are empowered and reinforced for IPM practice and shared learning among colleagues | 1.1.3 Exchange program among farmers from the previeous project phase I, II and the proposed project (3 times) |
| 1.1.4 Commercial farmers are made aware of the issue and equipped for safe practice | 1.1.4 Training to commercial farmers (n-90, 30 farmers\*3 groups\*2 days) |
| 1.1.5 Commercial farmers are technically supported for safe practice | 1.1.5 Follow up to trained FFS farmers and commerial famers (9 times) and technical advice |
| 1.1.6 Best practices are shared and documented with other districts | 1.1.6 Conduct webinars among farming sector stakeholders (role model farmers, pesticide retailers and municipalities) to share the best practices (3 times) |
| **For pesticide spray workers** | |
| 1.1.7 Pesticide spray workers are skilled and equipped for safe handling of pesticides | 1.1.7 Conduct training and provide equipment support to pesticide spray workers (n=35 - 5 from each municipality) |
| 1.1.8 Pesticide spray workers are empowered and reinforced for continued safe practice while handling pesticide | 1.1.8 Follow up (3 times) to pesticide spray workers and technical advice |
| 1.1.9 Pesticide spray workers are registered in the municipality with more ensured health and safety issues | 1.1.9 Review program for the issue of registration of pesticides spray workers in the municipality office (15 - 7 from cooperatives, 7 agriculture officers, one from agriculture knowledge center) |
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| **For pesticide retailers** | |
| 1.1.10 Pesticide retailers are skilled on safe handling of pesticides and counsel farmers for safe practice | 1.1.10 Conduct training to pesticide retailers (n=35 - 5 from each municipality) |
| 1.1.11 Pesticide retailers are empowered and reinforced for continued safe practice and counseling | 1.1.11 Follow up (3 times) to pesticide retailers' shop and technical advice |
| 1.1.12 Pesticide retailers' safe practices are documented and the pesticide market is monitored | 1.1.12 Review program about the effectiveness of the training and about the monitoring of pesticide market and safe practice by pesticide retailers (16 - 7 from cooperatives, 7 agriculture officers, one from agriculture knowledge center, one from pesticide retailers organization) - 2 times |
|  |  |
| **Collaboration/stakeholders:** NPHF/agriculture department of local municipalities/farmers' cooperatives/pesticide spray workers/pesticide retailers' organization/research institutes | |
| **Indicator 1.2** Training materials have been adopted in 7 farmers cooperatives and at District level for continued training in the District | |
| Outputs | Activities |
| 1.2.1 Manuals and videos produced as reference documents for IPM FFS training | 1.2.1 Update IPM FFS training manual and prepare videos |
| 1.2.2 Manuals and videos produced as reference documents for pesticide spray workers training | 1.2.2 Update pesticide spray workers training manual and prepare videos |
| 1.2.3 Manuals and videos produced as reference documents for pesticide retailers training | 1.2.3 Update pesticide retailers training manual and prepare videos |
| **Collaboration/stakeholders:** The proposed project/agriculture department of local municipalities/farmers' cooperatives/spray workers/pesticide retailers organization/IT company | |
| **Indicator 1.3** A plan for regular training by farmers cooperatives is adopted by farmers cooperatives and agricultural department in the District | |
| Outputs | Activities |
| 1.3.1 Cooperative farmer members are capacited to conduct FFS | 1.3.1 Conduct ToT training to cooperative farmer members on the organization of FFS (14 members from 7 cooperatives \* in 3 days) |
| 1.3.2 Cooperative members are skilled to manage IPM-FFS | 1.3.2 Conduct exposure visits to cooperative members and district tehcnicians to project's FFS class/fields for practical learning (once) |
| 1.3.3 Cooperatives are equipped with training materials to conduct IPM-FFS together with the District. | 1.3.3 Support to cooperatives and District to organize FFS independently under the supervision from the project (3 training by 3 cooperatives, (per training support from project Nrs 100000, rest from cooperatives) |
| 1.3.4 Impact of cooperatives' conduction of IPM-FFS is assessed and documented | 1.3.4 Review and evaluation meeting with farmers cooperative representatives (15 - 7 from cooperatives, 7 agriculture officers, 1 from agriculture knowledge center)\*2 times |
| **Collaboration/stakeholders:** NPHF/agriculture department of local municipalities/farmers cooperatives | |

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| **Objective 2: Establish consumer fora that advocate for pesticide free foods through lobbying among politicians and fellow citizens** | |
| **Indicators** | **Means of verification** |
| * 1. Consumer fora established among relevant stakeholders have through awareness raising and advocacy increased KAP by 50% (Knowledge, Attitude and Practice) among consumers on the demand and consumption of pesticide free agricultural products.   2. Increased awareness raising activities among consumers by health workers have lowered pesticide exposure in food and increased capacity to manage acute and chronic poisonings.   3. A certification and market outlet for IPM and ecological farming products is in place after advocacy by consumer fora and farmers cooperatives and promoted by the District authorities. | Analysis of a baseline and a follow-up study on KAP among randomly selected consumers  Analysis of a baseline and a follow-up study on KAP among randomly selected Health care workersAnalysis of activity reports/minutes from consumer forums and authorities  Inspection of certified agriculture products and market outlets |

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| **Indicator 2.1** Consumers fora established among relevant stakeholders have through awareness raising and advocacy increased KAP by 50% (Knowledge, Attitude and Practice) among consumers on the demand and consumption of pesticide free agricultural products. | |
| Outputs | Activities |
| 2.1.1 Local politicians, social leaders and consumer associations are coordinated and sensitized on the issue | 2.1.1 Orientation and planning meetings in 7 municipalities for ward political representatives, social leaders and consumer associations (30 persons, 1 event in each municipality = 7 events) |
| 2.1.2 Politicians and consumers are sensitized on their role for pesticide minimization | 2.1.2 Dialogue between politicians and consumers on the issue of chemical pesticide (3 times) |
| 2.1.3 Media awareness on the issue of chemical pesticide is enhanced and the issue is highlighted | 2.1.3 No pesticide use week celebration (interaction with media, public dialogue, interview and questioning to concerned stakeholders, etc - 3 events) |
| 2.1.4 Consumers are more concerned on their role to demand for pesticide free foods | 2.1.4 Mass media awareness programmes (hoarding boards, awareness videos, social media mobilization, rallies, street drama), IEC material distribution and exhibition in public and market places (7 municipalities = 14 places) |
| 2.1.5 Concerned stakeholders are coordinated for the action from their department to address the issue | 2.1.5 Orientation and planning meetings with health, education and environment officers from the municipality and the district (30 persons\*1 day) for multisector action to reduce the harmful use of pesticide |
| 2.1.6 Training manuals and videos updated as a reference document | 2.1.6 Update the curriculum for school teachers training |
| 2.1.7 School teachers are trained to promote the concept of pesticide free foods in schools and communities | 2.1.7 Training to school teachers (secondary school-health focal teacher (1) (n = 30 school teachers from 30 schools; one group for 2 days) |
| 2.1.8 Students are made aware of their role to demand pesticide free foods and convey the message to their parents | 2.1.8 Conduct school health programs - (7 schools, 1 event in each school = 7 events) - awareness sessions to students, interaction with their parents about pesticide free foods demand and consumption |
| **Collaboration/stakeholders:** The proposed project/health, ward political representatives, consumer associations, education and environment departments of the municipality | |

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| **Indicator 2.2** Increased awareness raising activities among consumers by health workers have lowered pesticide exposure in food and increased capacity to manage acute and chronic poisonings. | |
| Outputs | Activities |
| 2.2.1 Concerned stakeholders are coordinated for the program | 2.2.1 Planning meeting with health officials and health workers for the training (15 persons\*1 day) |
| 2.2.2 Training manuals and videos updated as reference documents | 2.2.2 Update of training manuals of health workers and FCHVs |
| 2.2.3 Health workers are skilled to manage pesticide poisoning cases | 2.2.3 Training to frontline health service providers (60 frontline health persons - 30 in 2 groups for 3 days) |
| 2.2.4 FCHVs are capacitated to dissiminate the message to mother groups to prevent pesticide poisoning | 2.2.4 Training to the FCHVs (90 FCHVs; 30 FCHVs in each group for 2 days) |
| 2.2.5 Stregthened implementation of the action plan made in the training | 2.2.5 Follow up and review with the health department of the 7 municipalities (3 times) |
| **Collaboration/stakeholders:** The proposed project/health department of local municipalities/health workers | |
| **Indicator 2.3** A certification and market outlet for IPM and ecological farming products is in place after advocacy by consumer fora , and farmers cooperatives and promoted by the District authorities. | |
| Outputs | Activities |
| 2.3.1 Concerned stakeholders are coordinated for the program | 2.3.1 Coordination and planning meeting with district and municipal authorities (agriculture department officials from 7 municipalities, representatives from district cooperatives, market management committees and consumer rights associations - 30 persons\*1 day) |
| 2.3.2 IPM and organic farm products are certified and market space improved | 2.3.2 Workshops with district, municipal authorities and market stakeholders (as above) to facilitate the action on certification and improved market space for IPM and organic farm products (20 persons\*3 days\*1 time) |
| 2.3.3 The implementation of certification and sales promoted | 2.3.3 Coordination and interaction meetings with farmer cooperatives to promote certification and sales and link with government plans/programs (one group of 30 persons\*1 day) |
| 2.3.4 Compliance of farmers for certification and sales is encouraged | 2.3.4 Coordination and interaction with IPM/organic farmers to promote certification and sales and link with government plans/programs (30 farmers\*2 days training) |
| 2.3.5 Stregthened implementation of the pesticide measurement laboratory in Chitwan | 2.3.5 Follow up and review to ensure the implemention, enforce the regular use of pesticide residue measurement laboratory in Chitwan |
| 2.3.6 Best practices are shared and documented | 2.3.6 Conduct webinars among agriculture, health, education, environment, consumers association and market stakeholders to facilitate the exchange of best practices to reduce chemical pesticide from their sector (3 times) |
| **Collaboration/stakeholders:** The proposed project/agriculture department of local municipalities/farmers' cooperatives/IPM and organic farmers/market stakeholders | |

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| **Objective 3: Define an operational strategy to prevent pesticide poisoning which has a multisector approach and can be adopted at the federal, provincial and municipal level** | |
| **Indicators** | **Means of verification** |
| 3.1 A pesticide poisoning prevention strategy and guidelines is incorporated in the policy at the federal, provincial and municipal level  3.2 New knowledge from documentation studies has been published and/or shared on conferences/webinars at local, national and international level at least 5 times during the project period  3.3 Different stakeholders (NGO’s, farmers cooperatives, consumers organisations) are working actively with the authorities on activities contained in the prevention of pesticide poisoning strategy | Pesticide minimization strategy document  Research reports  Updated database and digital resource center  Activity reports  Evaluation report |

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| **Indicator 3.1** A pesticide poisoning prevention strategy and guidelines is incorporated in the policy at the federal, provincial and municipal level | |
| Outputs | Activities |
| 3.1.1 Concerned stakeholders from the federal level are coordinated for the program | 3.1.1 Coordination and planning meeting with stakeholders at the federal level (1 group of 25 persons\*1 day) |
| 3.1.2 Concerned stakeholders from the provincial level are coordinated for the program | 3.1.2 Coordination and planning meeting with stakeholders at the provincial level (1 group of 25 persons\*1 day) |
| 3.1.3 Concerned stakeholders from the municipal level are coordinated for the program | 3.1.3 Coordination and planning meeting with stakeholders at the municipal level (1 group of 25 persons\*1 day) |
| 3.1.4 Pesticide minimization strategy/guideline formulated and endorsed | 3.1.4 Conduct workshops with the policy makers, planners, civil society organizations, and relevant stakeholders from the municipal, provincial and federal levels for the formulation and endorsement (25 persons\*5 days\*2 times) |
| 3.1.5 Ensure and stregthened implementation at the federal level | 3.1.5 Follow up and review meetings at the federal level (1 group of 25 persons\*1 day\*3 times) |
| 3.1.6 Ensure and stregthened implementation at the provincial level | 3.1.6 Follow up and review meetings at the provincial level (1 group of 25 persons\*1 day\*3 times) |
| 3.1.7 Ensure and stregthened implementation at the municipal level | 3.1.7 Follow up and review meetings at the municipal level (1 group of 25 persons\*1 day\*3 times) |
| **Collaboration/stakeholders**  **At Federal level:** National Planning Commission/Plant Quarantine and Pesticide Management Center/Ministry of Health and Population/Department of Health Services, Department of Food Technology and Quality Control/Ministry of Environment/National Agriculture Research Council/Nepal Health Research Council/CSOs/Consumer forums.  **At Provincial level:** Ministry of Land Management, Agriculture and Cooperatives, Ministry of Social Development (comprising of health, education and environment sector)  **At Municipal level:** Municipalities/Cooperatives/Markets/Consumer associations | |

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| **Indicator 3.2** New knowledge from documentation studies has been published and/or shared on conferences/webinars at local, national and international level at least 5 times during the project period | |
| Outputs | Activities |
| 3.2.1 Evidence generated for evidence based lobbying and advocacy on the issue of pesticide and health in Nepal and beyond | 3.2.1 Research about the exposure to chemical pesticides and effects on pregnancy outcomes, non-communicable diseases in collaboration with national/international organizations/research institutes and universities (3 researches in Nepal) |
|  |  |
| 3.2.2 Research findings are consolidated and shared with larger audience to influence policy making process on the issue | 3.2.2 Conduct seminars involving research organizations/agencies and government authorities including relevant stakeholders for the dessimination (2 times\*80 persons) |
| 3.2.3 An updated and resourceful database is established | 3.2.3 Update IEC materials, collect resources and strengthen the digital resource center of FHEN for making them accessible to the policy makers, planners, programmers and consumers |
| 3.2.4 Best practices are shared via videos and other platforms and documented | 3.2.4 Conduct webinars among national, regional and international policy makers, media persons and politicians to voice their role and work to address the issue of chemical pesticide (3 times) |
| **Collaboration/stakeholders:** Media and government at federal, provincial and local levels | |
| **Indicator 3.3** Different stakeholders (NGO’s, Farmers cooperatives, consumers organisations) are working actively with the authorities on activities contained in the prevention of pesticide poisoning strategy | |
| Outputs | Activities |
| 3.3.1 An example of strong advocacy is created | 3.3.1 Panel discussion among various stakeholders from different parts of Nepal on the issue and how local, provincial and federal governments are responding in order to ensure the implementation of guideline/strategy (3 times a year) |
| 3.3.2 The issue of chemical pesticide is covered well by the media for public awareness | 3.3.2 Interaction programmes on television and media platforms mobilization for advocacy and debating on different policy and programmatic issue of pesticide (3 times a year) |

**4. Activities common to all objectives**

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| 4.1 Baseline and end-line surveys to assess the situation of pesticide use and health problems before and after project interventions. Also these are to evaluate the project outcomes and impact scientifically. |
| 4.2 Community/coordination/preparatory meetings in wards, villages |
| 4.3 District Project Advisory Committee meeting/MPAC (municipal) for approval process and closing |
| 4.4 Biannual review programs (field team and central office team) |
| 4.5 Monthly meetings (district staffs) |
| 4.6 Central Streeing Committee meetings (every quarter) |
| 4.7 Organize monitoring visits in the project sites for CSC members (Once a year) |
| 4.8 Capacity building and career development for the project staffs and exposure to local, national and international programs |

**Strategic approach**

***Development triangle approach:*** Based on the project works and learnings from the previous projects, we have framed the proposed project with the development triangle approach. The three components of the triangle - strategic deliveries, organizational capacities and advocacy – are interlinked and balanced in our approach. Our strategic deliveries include activities that empower the agricultural sector to minimize use of chemical pesticides; prepare health sector to address consequences of pesticide-related toxicities; enhance awareness of the consumer sector to voice for safe and chemical-free farming; motivate the market sector to encourage IPM/organic products. For carrying out these activities, NPHF has adequate organizational capacities, in the form of reputed members and skilled staff and management; proven track record of financial transparency, sound leadership and good governance practices; hands-on knowledge and valuable experience in the pesticide issue; a solid networking - particularly at local and federal level with the government and civil-society organizations. Furthermore, NPHF, through this project, shall be focused on marginalized groups, and shall help farmers and consumers unite to claim their rights of pesticides free food and environment. Leveraging on these planned strategic services and organizational capacities – NPHF shall venture into full-fledged advocacyrelated activities in the proposed project, with a clear-cut advocacy plan; analysis of the opportunities and barriers; strategic use of its partners; and formation of an alliance of like-minded organizations. Indeed, the rich experience of the first two phases, production of validated training and learning materials, documentation of successful implementation of activities shall be of utmost importance in the catalysing role that NPHF aspires to play at the local, provincial and national level.

***Multi-sector approach:*** As in the previous projects the point of departure of the proposed project is a multi-stakeholder strategy, and shall continue to work with stakeholders from agriculture, health, market, education, governance, and consumers. The project will continue to involve those who handle pesticides directly in their daily work like male and female farmers, agro dealers, and spray-men; those who can snowball awareness messages into the community (general population, school children, consumer groups); those who can bring clear changes in policy-making and implementation (bureaucrats, office bearers, CSOs, market management); and those who are at frontline of handling acute and chronic health problems associated with chemical pesticides (health workers, community health volunteers). Building on the succesful collaboration and participation from different stakeholders in the previous projects , the proposed project seeks to promote further the cross sectional collaboration.

***Evidence-based approach:*** The success stories of Chitwan (changes in farmers pesticide use behaviour and personal protection; motivation of the municipal and sub-municipal office-bearers to prioritize the pesticide issue, etc) are evidence that shall be masively utilized to advocate and inspire provincial and federal decision-makers. Epidemiological evidence generated during the previous projects (increased risk of adverse pregnancy outcomes due to pesticide exposure; organophosphates consumption linked to suicide cases, etc) shall also be of important use in advocating evidence-based policy decisions and implementation. The published materials and documents have put a spotlight on pesticide research in Nepal. Such epidemiological studies shall continue to remain a cornerstone of the project, and evidence generated from the studies and surveys shall be disseminated through scientific publications, webinars and conferences.

***Equity-based approach:*** Even though, all those who handle pesticides are vulnerable to the dangers of pesticides, the project ensures space for women, mother groups and marginalized farmers to discuss their issues with regards to farming, any other social issues so that they can share their ideas for its alternatives and solutions. The project has strictly followed the criteria of gender equality, equity and fair representation while selecting participants for different categories of training.

***Addressing the gaps****:* There were several issues which could not be addressed by the scope of the previous project phase II which are very important and urgent in terms of adverse environmental and health effects of pesticides. They were mainly in areas of market management and consumer awareness for the demand of availability and affordability of pesticide free foods. Also, alternatives to chemical pesticides were less explored in previous project phase II. Community awareness was highly valued but mass mobilization to lead pesticide minimization movement was lacking during the previeous project. Therefore, the proposed project has been conceived with a more synergistic and multi-sector perspective to work at the community and public system levels with a participatory and evidence based approach. New partnership shall be forged leveraging on the current partnership (e.g. market management can be approached via the farmer coopertives) to achieve the project objectives.

**Risk assessment:**

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| --- | --- | --- | --- |
|  | IMPACT ON THE PROJECT | | |
| LIKELIHOOD | LOW | MEDIUM | HIGH |
| LOW | RESISTANCE AMONG TRADITIONAL FARMING COMMUNITIES | HEAVY PEST ATTACKS | CORRUPTION |
| MEDIUM | ELECTIONS | CLIMATE CHANGES | COVID-19 NEXT WAVES |
| HIGH |  |  |  |

Our experience in the 2017-2020 project has shown that it is possible to overcome resistance among traditional farming communities especially during heavy pest attacks by awareness raising, and even though it is a theoretical risk we have not seen it play out in practice. Should resistance nonetheless be encountered, we will analyse the situation thoroughly to find ways to overcome it, e.g. by using peer-to-peer interactions and by liaising with local authorities who are positive towards the project.

The COVID-19 pandemic may divert the attention of the stakeholders away from the project agenda, and field activities may be affected due to it. At the time of writing, Nepal has seen a total of around 275.000 cases with a steep increase in the last quarter of 2020, but the epidemic has been curbed by nationwide restrictions, and the current number of new cases is low. Nepal launched its vaccination drive in January 2021. Even if COVID-19 persists to a certain degree, we shall ensure that all the statuary government guidelines are strictly followed. If needed and wherever appropriate, particularly if free movement and gatherings are affected, we shall (as done in previous project) also adapt online and internet technologies to implement some of the activities, and use webinars, podcasts production and videos. As a last resort, project activities may need to be suspended for a certain period of time, but so far it has been possible to contain the epidemic through restrictions, and it is foreseen that such a suspension due to next waves of the epidemic in Nepal would only be necessary for a limited period of time.

Regarding elections, we shall plan our activities in such a way that the activities are not hampered by the election process. The elections may lead to a change in office bearers after the elections, and if that happens we shall see to it that there is adequate institutional memory in these governmental offices (e.g. through documentation) and that the new office bearers are adequately oriented to the project and shared common agenda.

Bribery and corruption needs a focus on the ethics and good governance, and the staff in charge of the financial and overall project management is highly dedicated to anti-corruption. Like in previous projects, during project monitoring visits focus will be put on anti-corruption as well as transparency and accountability through the use of tools suggested by CISU like e.g. the Mango Health Check, and yearly audits by an external auditor of project accounts will be done. In the history of partnership with NPHF, first with Diálogos and now with DASAM/ICOEPH, no incidents of corruption have occurred.

Regarding climate changes, IPM farming is thought to be more CO2 neutral and climate resilient than both conventional and ecological farming, and by awareness raising on this issue we think eventual eventual resistance from conventional farmers can be met.

**Phase-out and sustainability:** Close collaboration and coordination with the municipalities and their ward offices have helped the previous projects to build up the trust between the local government and the project’s stakeholders. The previous project has built networking and implemented advocacy activities in the current phase, particularly at the district and municipal levels, which shall be reinforced in the proposed project to ensure that the activities are sustained even after the phase-out of the proposed project duration. Four partner municipalities of Chitwan district have realized the importance and role of the project’s programs, particularly the IPM program to minimize the use of pesticides in the agriculture field. They have committed even to allocate budget to minimize the use of pesticides in their annual program through training program by co-partnering with the project. Further, formation of a pesticide management taskforce composing representatives from all six municipalities, the proposed project and other stakeholders to prepare guidelines to minimize chemical pesticides use in the district is another strong indicator of the collaboration with the local authorities.

Wards, or the sub-municipal administrative units, have been integral partners of the previous project, and they have declared in public forums to continue working with the pesticide issue in the coming years, through IPM trainings and consumer awareness activities. In the proposed project, we intend to build on this readiness of the local governments to jointly work on these activities, so that they gradually take over fully and continue similar activities even after the proposed project phases out.

The previous project focused primarily on district level activities, and reached out to the provincial and federal governments through advocacy meetings. The proposed project, particularly through its objective 3, shall strategically implement advocacy activities that shall establish pesticide issue as a national multisectoral agenda. For this, we shall be partnering with local, provincial and federal governments, including the National Planning Commission, other civil society organizations, and External Development Partners. NPHF’s extensive governmental expertise has created good possibilities for continuous lobbying, negotiation and information sharing with policy makers on the topic of farming, health and environment, and this will help to bring the pesticide issue on the agenda and make this project sustainable and scalable. Furthermore, Nepal’s commitment to Sustainable Development Goals, in particular Goal #2 Target 4 on sustainable food production systems and resilient agricultural practices, is likely to garner support to our work, and ensure sustainability to the issue that the project is addressing.

Synergy towards sustainability shall also come from the activities of Objective 2 that focus on consumer awareness. We shall be partnering with consumer rights forum and farmers cooperatives to massively raise awareness at the consumer level. Eventually, stronger public voice from the consumers shall also help to sustain impacts of the project. In addition, experience from the current phase show that the target groups, including farmers, have strong zeal to learn more, which indicate that the scope of training farmers of IPM and sustainable farming is of a long lasting nature.

To ensure that the proposed project activities continue to be implemented even after the project has phased out, we shall have built in strategies to ensure sustainability in all our activities. For example, we shall be technically backing up the IPM related activities of the municipalities and wards, whereas the primary responsibility of conducting the IPM trainings shall be theirs. Development of the national-level multisectoral guideline with an implementation plan shall be done through strategic engagement of governmental and non-governmental organizations. Farmers shall be continuing to practice IPM and safe farming as they shall have adequate knowledge and skills, coupled with favourable market environments for selling their products. Consumer forums shall have the issue of safe farming and food features as a long-term agenda - their motivatation shall ensue from a better bureaucratic atmosphere at the different tiers of government for food safety, explicit guidelines and programs that ensure reduction of toxic hazards in farming, and market policies more conducive to IPM and organi products.

In order to ensure a successful handover, a phase-out planand activities shall be developed in the beginning of the project in consultation with the stakeholders. Sustainability indicators shall be put in place and reviewed at half-yearly intervals. Any capacity gap shall be identified and systematically addressed.

Experience from the previeous projects have shown that the support form both the target groups and the local authorities are incresing over time, supporting the sustainability of the interventions.

Experience from similar projects has already shown that social sustainability is a achievable goal for a project of this kind. It is important to stress that the proposed project builds on existing structures in the project area (farmers’ cooperatives, local administrative bodies etc.). In similar projects in Uganda and Bolivia, the strategies and materials of high quality have given rise to interest from other organizations, e.g. operative branches of ministries, teaching institutions and other NGOs who have adopted the theme. They themselves have asked and paid for courses, which is a reflection of the necessity of the intervention. The same level of interest is not yet reached in Nepal, but there is a potential based on several contacts in the governmental system which have showed interest.

**Timeline**

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|  | **Quarterly Timeline (3.5 years)** | **Q1** | **Q2** | **Q3** | **Q4** | **Q5** | **Q6** | **Q7** | **Q8** | **Q9** | **Q10** | **Q11** | **Q12** | **Q13** | **Q14** |
| 1.1.1 | Orientation and planning meeting | **X** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1.1.2 | Training to farmers |  |  | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |  |  |  |  |
| 1.1.3 | Exchange program among farmers |  |  |  |  | **X** |  |  |  | **X** |  |  |  | **X** |  |
| 1.1.4 | Training to commercial farmers |  |  |  |  |  | **X** | **X** | **X** |  |  |  |  |  |  |
| 1.1.5 | Follow up to trained farmers |  |  |  |  |  |  |  |  | **X** | **X** | **X** | **X** | **X** |  |
| 1.1.6 | Webinars among farming sector |  |  |  | **X** |  |  |  | **X** |  |  |  | **X** |  |  |
| 1.1.7 | Training to pesticide spray workers |  |  |  | **X** |  |  |  |  |  |  |  |  |  |  |
| 1.1.8 | Follow up to pesticide spray workers |  |  |  |  |  | **X** |  |  | **X** |  |  | **X** |  |  |
| 1.1.9 | Review of spray workers |  |  |  |  |  |  |  | **X** |  |  |  |  |  |  |
| 1.1.10 | Training to pesticide retailers |  |  |  |  | **X** |  |  |  |  |  |  |  |  |  |
| 1.1.11 | Follow up pesticide retailers |  |  |  |  |  |  | **X** |  | **X** |  | **X** |  |  |  |
| 1.1.12 | Review of pesticide retailers |  |  |  |  |  |  |  | **X** |  |  |  | **X** |  |  |
| 1.2.1 | Update FFS manual and videos |  | **X** |  |  |  |  |  |  |  |  |  |  |  |  |
| 1.2.2 | Update sprayer manual & videos |  | **X** |  |  |  |  |  |  |  |  |  |  |  |  |
| 1.2.3 | Update retailer manual & videos |  | **X** |  |  |  |  |  |  |  |  |  |  |  |  |
| 1.3.1 | ToT training to cooperative farmers |  |  |  |  |  | **X** |  |  |  |  |  |  |  |  |
| 1.3.2 | Exposure visits to coop members |  |  |  |  |  | **X** |  |  |  |  |  |  |  |  |
| 1.3.3 | Support to cooperatives for FFS |  |  |  |  |  |  | **X** | **X** | **X** | **X** | **X** | **X** | **X** |  |
| 1.3.4 | Review meeting with coop reps |  |  |  |  |  |  |  | **X** |  |  |  | **X** |  |  |
| 2.1.1 | Meetings in 7 municipalities |  | **X** |  |  |  |  |  |  |  |  |  |  |  |  |
| 2.1.2 | Dialogue of politicians and consumers |  |  | **X** |  |  |  | **X** |  |  |  | **X** |  |  |  |
| 2.1.3 | No pesticide use week celebration |  |  | **X** |  |  |  | **X** |  |  |  | **X** |  |  |  |
| 2.1.4 | Mass media awareness programs |  |  |  | **X** | **X** | **X** | **X** | **X** |  |  |  |  |  |  |
| 2.1.5 | Multisector planning meetings |  | **X** |  |  |  |  |  |  |  |  |  |  |  |  |
| 2.1.6 | Update teachers’ training curriculum |  |  | **X** |  |  |  |  |  |  |  |  |  |  |  |
| 2.1.7 | Training to schoolteachers |  |  |  | **X** |  |  |  |  |  |  |  |  |  |  |
| 2.1.8 | School health programs |  |  |  |  | **X** | **X** | **X** |  |  |  |  |  |  |  |
| 2.2.1 | Planning meeting with health officials |  | **X** | **X** |  |  |  |  |  |  |  |  |  |  |  |
| 2.2.2 | Update of health training manuals |  |  | **X** |  |  |  |  |  |  |  |  |  |  |  |
| 2.2.3 | Training to frontline health workers |  |  |  | **X** | **X** |  |  |  |  |  |  |  |  |  |
| 2.2.4 | Training to the FCHVs |  |  |  |  |  | **X** | **X** | **X** |  |  |  |  |  |  |
| 2.2.5 | Follow up with health department |  |  |  |  | **X** |  |  | **X** |  |  | **X** |  |  |  |
| 2.3.1 | Meeting district/municipal authorities |  |  | **X** |  |  |  |  |  |  |  |  |  |  |  |
| 2.3.2 | Workshop with district/municipal |  |  |  | **X** |  |  |  |  |  |  |  |  |  |  |
| 2.3.3 | Meetings farmer coop |  |  |  |  | **X** | **X** |  |  |  |  |  |  |  |  |
| 2.3.4 | Interaction with IPM/organic farmers |  |  |  |  |  | **X** | **X** |  |  |  |  |  |  |  |
| 2.3.5 | Review pesticide laboratory |  |  |  |  |  |  | **X** | **X** | **X** |  |  |  |  |  |
| 2.3.6 | Webinars among consumer groups |  |  |  |  | **X** |  | **X** |  | **X** |  |  |  |  |  |
| 3.1.1 | Planning meeting at the federal level |  |  |  | **X** |  |  |  |  |  |  |  |  |  |  |
| 3.1.2 | Planning meeting at provincial level |  |  | **X** |  |  |  |  |  |  |  |  |  |  |  |
| 3.1.3 | Planning meeting at municipal level |  | **X** |  |  |  |  |  |  |  |  |  |  |  |  |
| 3.1.4 | Workshops with policy makers |  |  |  |  | **X** |  | **X** |  |  |  |  |  |  |  |
| 3.1.5 | Follow up meetings at federal level |  |  |  |  |  | **X** |  |  | **X** |  |  | **X** |  |  |
| 3.1.6 | Follow up meetings at provincial level |  |  |  |  |  | **X** |  |  | **X** |  |  | **X** |  |  |
| 3.1.7 | Follow up meetings at municipal level |  |  |  |  |  | **X** |  |  | **X** |  |  | **X** |  |  |
| 3.2.1 | Researches (pesticide effects on health) |  | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |  |
| 3.2.2 | Seminars with research organizations |  |  |  |  |  |  |  | **X** |  |  |  |  | **X** |  |
| 3.2.3 | Digital resource center update |  | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |  |
| 3.2.4 | International Webinars |  | **X** |  |  |  | **X** |  |  |  | **X** |  |  |  |  |
| 3.3.1 | Panel discussion among stakeholders |  | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |  |
| 3.3.2 | Interactions on television & media |  | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |  |
| 4.1 | Baseline and End-line surveys | **X** |  |  |  |  |  |  |  |  |  |  |  |  | **X** |
| 4.2 | Coordination & preparatory meetings | **X** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4.3 | District/municipal approval and closing | **X** |  |  |  |  |  |  |  |  |  |  |  |  | **X** |
| 4.4 | Annual review programs |  |  |  | **X** |  |  |  | **X** |  |  |  | **X** |  |  |
| 4.5 | Monthly meeting (district staff) | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| 4.6 | Central Steering Committee meetings | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| 4.7 | CSC monitoring visits |  |  |  | **X** |  |  |  | **X** |  |  |  | **X** |  |  |
| 4.8 | Staff career development programs | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| 8.2, 8.3 | Auditing and evaluation |  |  |  |  |  |  |  |  |  |  |  |  |  | **X** |

**4. Intervention-related information work in Denmark**

In line with our earlier projects, DASAM/ICOEPH plans:

* Information meetings/participation on conferences about the project with stakeholders in Denmark
* Public meetings with stories and pictures from the project along with information about pesticide toxicology in a global and in a Danish context
* Reports from field trips in national and local medias
* Frequent updates from the projects on our homepage and our social media platforms

We are active at universities and hospitals in Denmark and on conferences and through memberships of professional platforms globally where experiences from the project are shared.

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