

## POLICY BRIEF

# Ensuring seasonal food availability and dietary diversity during and after transition of shifting cultivation systems to settled agriculture

## KEY ISSUES

Despite holding the promise of food security, improved nutrition and enhanced incomes, the establishment of terraces and plantations as replacements for shifting cultivation has resulted in large-scale land-use change and the consequent erosion of the diverse resource base that upland communities are dependent on for their food and nutritional needs. The replacement of shifting cultivation with settled agriculture has depleted crop diversity depriving shifting cultivators of their ability to engage in sequential harvesting, thus adversely affecting seasonal food availability and dietary diversity with potentially serious negative effects on nutrition and the phenomenon of hidden hunger. In Laos PDR, relocation of villages to lowlands, inadequate and insufficient land for paddy cultivation, and limiting rotational agriculture to three plots have severely affected productivity, increasing food insecurity and poverty. This has implications for meeting the targets of Sustainable Development Goals, particularly those linked to SDG 2 on Zero Hunger. Approaches for transition from shifting cultivation to settled systems, therefore, need to be revisited. Programme designs for transition need to be designed and implemented with utmost care and with a holistic socio-ecological approach, failing which even well-intended interventions and programmes could very well become counter-productive and result in seasonal food scarcity with implications for nutritional security and hidden hunger in the long term.

## Introduction

This policy brief examines the impact on seasonal food availability and dietary diversity from replacing shifting cultivation<sup>1</sup> with settled agriculture. Drawing on the examples of Northeast India and Laos PDR, the brief discusses the ramifications for nutritional security and hidden hunger. The brief also explores possible approaches for overcoming this challenge and provides recommendations for addressing the issue during and after transition, which can be relevant and applicable not only for Northeast India and Laos PDR but also other countries in South and Southeast Asia.

Shifting cultivation is generally perceived as a 'primitive' agricultural practice, economically unviable and a major cause of deforestation. Despite scientific views to the contrary<sup>i, ii, iii, iv, v, vi, vii, viii</sup> governments across the world have tried to replace the practice with settled agriculture. In India, shifting cultivation is predominantly concentrated in the uplands of the Northeast as well as in Odisha and Chottanagpur areas although to a much lesser extent. Since the seventies, successive governments, in the case of India, have earmarked substantial financial outlays in successive Five-Year Plans to promote wet terraces and rubber, coffee, tea, cashewnut and spices as alternatives to shifting cultivation<sup>ix, x</sup>. Promotion of settled agriculture, particularly

<sup>1</sup>Shifting cultivation, discussed in this brief, refers to the practice where farmers return to a previously cultivated plot after the fallow period, which may, with a sufficiently long fallow period, have regenerated into secondary forest. In the Laotian context, the term as used here would equate with rotational shifting cultivation (hay moun vien) or rotational agriculture and does not refer to pioneering shifting cultivation (hay kheuan nhai) that requires the clearing of primary forests for cultivation.

commercial crops, continue to be a central thrust in the country's agricultural development approach for the northeast region. On their part, shifting cultivators have also adopted several commodity crops, with tea, spices and arecanut plantations becoming popular options and rapidly covering large areas of the uplands. Among these, the expansion of arecanut plantations has been community-led, requiring little effort for market linkages or support from the government and has shown an impressive rate of adoption over the last decade<sup>xi</sup>. Transition of shifting cultivation to settled agriculture in India has thus been promoted through centrally sponsored agricultural development, soil conservation and watershed management programmes with an underlying policy intent aimed at transition to settled agriculture.

In Laos PDR, shifting cultivation has been perceived as an agricultural practice requiring the clearing of new plots in mature, pristine forests and hence a primary cause of deforestation. Not surprisingly, the government has consistently pursued a strict policy seeking to eradicate the practice through a broad set of policy actions since 1975. Perceiving shifting cultivation as the main hindrance to forest conservation and agricultural development, the government has introduced policies the main thrust of which has been the resettlement of villages from upland to lowland areas to encourage transition to settled agriculture with the Land and Forest Allocation Programme (LFAP) as the principal mechanism to 'stabilize' and eradicate shifting cultivation. LFAP allocates land for 'stabilised' or settled upland paddy cultivation while confining rotational cultivation to three plots per household, thus restricting rotational shifting cultivation drastically<sup>xii</sup>.

Over the years, the government in Laos PDR has come to acknowledge that their policies have not worked effectively, leading instead in many cases to increased household poverty and food insecurity. This has led the government to reorient their policies for the uplands, shifting the focus to food security and economic growth with a secondary emphasis on stabilizing shifting cultivation. Important shifts in perception are reflected in the Strategic Vision for the Agricultural Sector (SVAS) (1999), the National Growth and Poverty Eradication Strategy (NGPES) (2004) and the Forest Strategy for the Year 2020 (FS2020) (2005). Both NGPES and FS2020 differentiate between pioneering shifting cultivation (*hay kheuan nhai*), which involves the clearing of mature forests for cultivation, and rotational shifting cultivation (*hay moun vien*). While the former is equated with the term 'shifting cultivation' and seen

as a primary cause of deforestation and therefore, strictly discouraged, rotational upland cultivation on allocated plots, or within agreed areas without encroachment into new forest areas, is accepted as an alternative although settled agriculture using 'improved, conservation-oriented farming' is preferred<sup>2</sup> and encouraged in the long term<sup>xiii</sup>.

The NGPES 2004 recognizes that inadequate access to land for paddy cultivation and the drastic reduction in the fallow period in rotational shifting cultivation has been the primary cause of food insecurity and increasing poverty in the uplands. In response, the NGPES called for a pluralistic approach to the issue recommending, among important approaches an 'area-specific approach'; diversification of farming systems; planned land-use zoning; and the promotion of community-managed natural resources. In 2010, the government introduced the Participatory Landuse Planning and Land Allocation (PLUPLA), setting out approaches for land and forest allocation procedures to atone for past deficiencies. Important policy shifts reflected in the PLUPLA manual are the acceptance of rotational cultivation, with rotating fallows in agreed agricultural zones, and the provision of agricultural and forest landuse entitlements and benefits. The Strategy for Agricultural Development from 2011 to 2020 of the Ministry of Agriculture and Forests (MAF SAD 2011-20) takes as its primary goal the conservation of the upland ecosystems to ensure food security and improvement of livelihoods through modernisation of agriculture, with stabilizing shifting cultivation as one of its main objectives. Adopting a more pragmatic approach, the strategy aims to affect the gradual transition from subsistence to smallholder commercial production but recognizes that it is important to ensure local food security needs are met prior to such transitions<sup>xiv</sup>.

Despite the seeming 'softening' in post-2000 policies, shifting cultivation in Laos PDR remains restricted with a drastic reduction in the fallow cycle to three years. Rotational agriculture is accepted only as an interim measure till viable alternatives are developed and the central objective of the government as reflected in the policy remains transition to settled agriculture and ultimate eradication of the practice. In contrast, policies in India are less restrictive. They accommodate community management of the practice even with long fallows periods if sufficient land is available and are designed to facilitate transition to settled agriculture through programme support and market dynamics. Equally importantly, they take into consideration

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<sup>2</sup>The change in perceptions draws substantially from the doctoral thesis and views of the former Vice Minister for Ministry of Agriculture and Forests, Phouang Parisak Pravongviengkham. As Pravongviengkham explains, '[i]t is the major assumption of this study that shifting cultivation practices cannot be reduced or even stabilized through drastic interventions. This is an unrealistic interventional approach which has not proven to be successful in the past' (Pravongviengkham, 1998: 62, quoted in Miles Kenney-Lazar, 2013)

the aspirations of communities to transit to settled agricultural options that offer better economic returns and assimilation to a market economy. In that sense, shifting cultivators in India seem to have a more flexible transition pathway that is of their choosing, without overt compulsion, while their counterparts in Laos are strictly bound by policy restrictions and the requirement to transform to permanent settled agricultural options with little in the way of choice.

### The trade-offs of transformation: Implications for seasonal food availability and dietary diversity

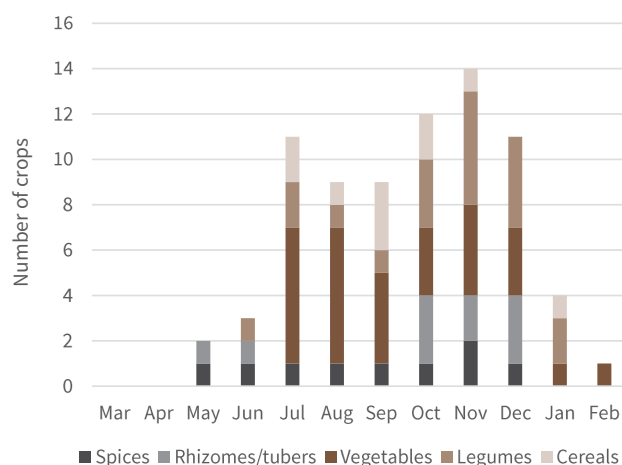
The promotion of settled agricultural systems, particularly plantations, has resulted in the replacement of food crops with commercial crops across South and Southeast Asia, drastically reducing the area under cultivation of food crops<sup>xv</sup>. Wet paddy cultivation (WPC), whether in terraces or valley bottoms, has been promoted to address yearlong staples security. WPC, however, has not been able to address the issue of staples security, particularly for the poor and marginalized, as the option is either too expensive as it requires substantial investments in finance and labour or the land allocated for it is inadequate and insufficient, thus rendering households poorer in the process as witnessed in Laos<sup>xvi</sup> and many other parts of the region. Promotion of plantations has encouraged the adoption of commodity and cash crops on the assumption that households will generate sufficient cash from it to meet consumption needs, including those essential for food security, through purchases from the market. But plantations, while holding the promise of enhanced incomes once mature, do not address the need for ongoing availability of food particularly during the gestation period, severely compromising thereby food security for the household.

With cash crops replacing food crops in the fields, the wide diversity of crops available from shifting cultivation which ensures food security has reduced drastically, narrowing down the choice to a few staples. This reduction in dietary diversity has severe health implications for shifting cultivators and their families and gives rise to increasing incidences of malnutrition and hidden hunger. Hidden hunger is defined as the insufficient intake or absorption of vitamins and minerals, such as vitamin A, iron, iodine and zinc even with a healthy energy intake, mainly because of the reliance on a narrowed range of food crops. It is responsible for the increasing instances of stunting and wasting seen in many countries of South and Southeast Asia, including India and Laos<sup>xvii</sup>. With the promotion of settled agriculture as replacement for shifting cultivation, food security is seriously compromised giving rise to the ‘second generation’ issue of

inadequate seasonal food availability and reduced dietary diversity, raising fundamental questions on the viability of such approaches.

For shifting cultivators, the practice, despite its subsistence character, allows a harvest of a wide variety of crops throughout the year, giving them confidence to manage risks. Even in its distorted, short-cycled form, shifting cultivation generates a rich diversity of crops that offers households the opportunity of sequential harvesting throughout the year. Although rice yields may not be sufficient for year-long availability, other food crops, among them, cereals such as maize and a variety of millets, leafy vegetables, legumes, spices and tubers, are available throughout the year, allowing sequential harvesting, thus ensuring both food availability through different seasons and year-long dietary diversity (Fig. 1)<sup>xviii</sup>.

**FIGURE 1** SEASONAL FOOD AVAILABILITY FROM SHIFTING CULTIVATION (BALADINGGRE, WEST GARO HILLS)



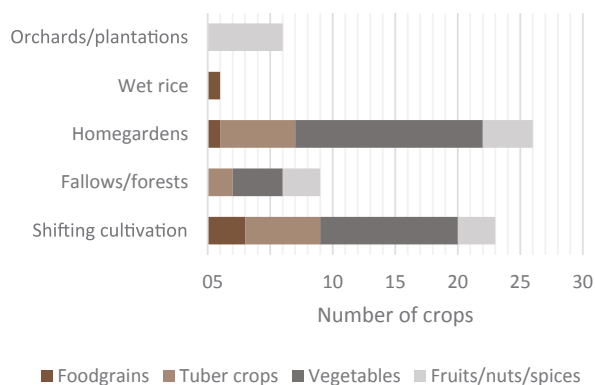
Source: PRA data, 2010

The expansion in plantations, with the transition of farming systems more towards market-oriented cash crops, has been at the cost of regenerating fallows. The resultant shortened fallow cycles not only lead to marginalisation of shifting cultivation but also to a drastic decline in crop diversity, productivity and yield, significantly affecting seasonal food availability<sup>xix, xx, xxi, xxii, xxiii</sup>. This has implications for dietary diversity and nutrition, potentially increasing incidences of hidden hunger. With increased market penetration, crop diversity within shifting cultivation has also witnessed changes with commodity crops dominating such systems and a proportionate decline in food crops<sup>xxiv, xxv</sup>. With the expansion in wet rice cultivation and cash crop plantations, the diversity hitherto found in upland agriculture is severely depleted, with the alternative systems offering, at best, two or three crop varieties as opposed to the multiple crops found in shifting

cultivation fields (Fig 2). They, thus, deprive households of the dietary diversity available from their traditional food-system<sup>xxvi, xxvii, xxviii</sup>.

FIGURE 2

**THE DIVERSITY OF RESOURCES ANNUALLY AVAILABLE TO THE UPLAND FARMER FROM DIFFERENT SYSTEMS**



Source: Choudhury, 2012

For shifting cultivators, the replacement of the practice with cash crops, despite the promise of cash generation, implies the eradication of their risk management strategy and, hence, signifies increased vulnerability to food insecurity and poverty, particularly for women and children. This also increases the pressure and stress on women to meet the daily dietary requirements of the household, deteriorating the quality of their well-being. The implications on food and nutritional security and, in turn, on the health of women and children, particularly pregnant and nursing mothers, are serious, with long-term ramifications for malnourishment and hidden hunger, potentially affecting the long-term health of the community. In order to ensure seasonal food availability and the dietary diversity required by the household, shifting cultivators in Northeast India thus continue with the practice simultaneously with wet terrace rice cultivation or cash crop plantations (or both) that they may have adopted in their efforts to transform their agricultural pursuits, giving rise to ‘composite shifting cultivation’ systems.

The most profound – and routinely overlooked – impact of cash crop expansion, however, has been the rapid loss of different-aged regenerating fallows and the resultant depletion in wild edibles, wild fruits, herbs, animal produce and other resources that are harvested from fallows by shifting cultivators, which adversely affects food diversity and the shifting cultivators’ subsistence economy<sup>xxix, xxx, xxxi</sup>. The Agro-Biodiversity Initiative (TABI), a joint initiative of the Government of Laos PDR and the Swiss Agency for Development and Cooperation has provided a detailed account of the wide diversity of produce harnessed

from fallows. Their report also points out that different-aged fallows give rise to a wide variety of microhabitats, which harbour plants and animals adapted to fallows at different stages of maturity, thus offering upland communities a diverse resource base of food and nutrition<sup>xxxii</sup>. The replacement of fallows with plantations permanently erodes this resource base and deprives communities of an important source of goods essential for their subsistent lifestyle. Restrictions on access to regenerating fallows can, similarly, have serious implications for the food and nutritional security of upland communities and hamper income opportunities. Access to such fallows, therefore, need to be assured to ensure a steady supply of these essential goods and services for upland communities.

## Facilitating an inclusive transition safeguarding food and nutritional security

### HOMEGARDENS: A SIMPLE AND EFFECTIVE ‘FIRST STEP’ IN SAFEGUARDING CROP DIVERSITY AND ENSURING SEASONAL FOOD AVAILABILITY AND DIETARY DIVERSITY

Transition to settled agricultural systems can have significant trade-offs for the shifting cultivator with serious long-term ramifications for nutritional security and health. Shifting cultivators in Chandigre, a village in the Nokrek Biosphere Reserve of West Garo Hills, Meghalaya, developed homestead gardens relocating many of the crops grown in shifting cultivation fields to these gardens, among them, cereals such as maize and millet, leafy vegetables, colocasia, sorrel, legumes, different varieties of gourds, pumpkins, spices such as chillies, ginger, turmeric, and tubers such as tapioca, and enriched the gardens with ‘modern’ crops such as tomatoes, peas, carrots, cabbages and cauliflower. On the margins of the home garden and spread across the homestead, they have introduced fruit trees and spices such as black pepper, bay leaves and cinnamon as well as several NTFPs from fallows, some of which have a high market demand. This relocation of crops, wild edibles and fallow produce allows the household sequential harvesting of food crops and wild edibles throughout the year, thus helping them to maintain the dietary diversity that they are used to and ensuring the required nutritional security. Promising approaches such as that of Chandigre have been replicated and scaled up across several states in Northeast India by development projects such as the North Eastern Region Community Resource Management for Upland Areas (NERCORMP) funded by the Government of India and IFAD. In Laos PDR, the Agriculture for Nutrition (AFN) project, jointly funded by the government of Laos PDR and IFAD, has promoted homegardens on a largescale, thus contributing to the government’s goal of ensuring nutritional security and economic growth in the upland areas. Homegardens have thus

become a means of safeguarding crop diversity, seasonal food availability and dietary diversity while facilitating transition to settled agricultural systems. Homegardens have proved to be a simple but effective approach for smooth transitioning and need to be supported further. Recognition of the system as an agricultural landuse category by governments, with specific annual budgetary allocations, can help scale up such approaches and contribute to strengthening food and nutritional security, during and after transition, for larger populations.

**ADDITIONAL APPROACHES TO AUGMENT FOOD SECURITY AND DIETARY DIVERSITY: AGRICULTURAL RESEARCH, STAPLES SECURITY, FOREST GARDENS AND CO-MANAGEMENT OF FOREST RESOURCES AND VILLAGE GRANARIES**

Transition from shifting cultivation to settled agricultural systems cannot happen overnight. It may take years before upland communities are able to adopt and adapt to alternative options. Governments must therefore accept that shifting cultivation in the uplands will continue for several years to come. In addition to the promotion of homegardens, steps must be taken to increase the cultivation period in shifting cultivation so as to delay the annual rotation to new plots. To facilitate this, agricultural research and extension must focus on improving the productivity of upland rainfed agriculture and broaden research efforts to identify and include crops that are presently underutilised and neglected but form integral components of upland agriculture. Modern agricultural technologies that harness microbial inoculants and soil fertility amelioration approaches based on low external input methods need to be introduced in upland systems to allow cropping for more than two years. Simultaneously, improved varieties of local crops, including upland paddy, need to be developed to enhance productivity and improve resilience of upland farms. Improving the productivity of upland rainfed systems such as rotational agriculture would be critical in delaying the annual rotations of shifting cultivation. These measures constitute crucial steps for improvement in food security in upland areas.

Expansion of wet paddy cultivation in upland areas is constrained because of the non-availability of arable land. Limitations in the availability of suitable land for wet cultivation has prevented upland households from increasing their holdings for paddy cultivation, giving rise to food insecurity and increased poverty. Recognising this constraint as a prime cause of upland food insecurity and poverty, the NGPES of Laos PDR has called for reappraisal of the LFAP to increase land allocations for staple security while simultaneously adopting measures to improve productivity in rotational agriculture. Agricultural research and technologies, therefore, have critical roles to play in prolonging the cultivation phase of such systems.

**AGRICULTURE FOR NUTRITION PROJECT SUPPORTING FOOD SECURITY AND NUTRITION IN NORTHERN LAOS PDR**

The Agriculture for Nutrition (AFN) project in Laos PDR is active in 12 mountainous districts in 4 northern provinces of the country. Its goal and objective is to reduce stunting among children and increase incomes through increased agriculture production for smallholders.

The project promotes the establishment of home gardens and supports cultivation of diversified local nutritious food crops and raising of small livestock such as chicken, ducks, and frogs. A total of 13,300 women have received small grants to establish such home gardens. The project also encourages farmers to organize in groups and produce crops or raise animals in a settled way, such as the production of cardamom, vegetables in plastic houses, irrigated maize and paddy, and raising pigs and goats in sheds and growing permanent forage feed-plots. Besides giving higher returns to the farmers, it also reduces the pressure on the shifting cultivation areas. The shifting cultivation areas are mainly used for the production of upland rice and maize as well as cash crops such as Job's tears and cardamom but they have, in general, low soil fertility and suffer from increased water shortages.

*Contributed by Pattivong Soulivanh, IFAD Country Office, Laos PDR*

While prolonging cultivation in rotational agriculture by even a year will help increase the fallow phase (and regeneration of forests), it requires technical and extension support to improve productivity of the plots. This is particularly the case in Laos.

In the context of Laos PDR, if cultivation can be extended to two years instead of the current one-year of cropping through the introduction of improved farming methods and crop varieties, the fallow phase of the plot will increase proportionately allowing the farmer to return to the same plot every fifth year, technically providing the plot an extended period of rejuvenation. Presently, a farmer is only allocated three plots for rotational cultivation. Hence, an increase in the cultivation phase of a plot by an additional year would make possible a fallow period of four years (instead of the present fallow of two years) with farmers returning to the same plot every fifth year. Provisions under LFAP, moreover, should be reassessed and revised to allow two additional plots per family, increasing the plot allotment to five from the current three. On their part, if communities also increase the cultivation phase from one to two years, the fallow cycle will increase to eight years, a significant extension, allowing the household to return to a plot every ninth year. If the plot allocation is increased to six, the fallow period would increase to ten years with households returning to the same plot every eleventh year. This would significantly increase fallow regeneration, allowing young forests to grow back in such plots giving rise, in turn, to different-aged fallows. This would allow a wide diversity of forest resources to return, improving environmental health and broadening the availability of a wide diversity of wild food resources from fallows. This would improve the food availability, dietary diversity and nutritional status of upland communities.

Along with the above, access to fallows for the collection of wild edibles, medicinal plants, animal produce and other forest products needs to be strengthened. While constitutional provisions in India empower communities in many parts of Northeast India to manage their forest resources, such efforts must be made to strengthen the decision-making powers of communities and to reduce the regulatory role of the government in order to facilitate or increase the active involvement and ownership of communities in conservation efforts. Governments should explore the possibility of co-management of fallows involving communities and encourage the development and management of 'enriched fallows' and forests gardens, which are common in the uplands of Sumatra, Indonesia<sup>xxxiii, xxxiv</sup>. The NGPES of Laos PDR recommends participatory management, involving the communities in managing natural resources. Laotian authorities (as well as authorities in other countries) should seriously explore the promotion of participatory

co-management approaches and encourage communities to take over management of fallows with the government playing simply a facilitating role. The promotion of forest gardens in rejuvenating fallows will set in motion the co-management of natural resources, improved forest resource conservation and access to forest resources by the community, thus contributing to the goals set out under the NGPES. This, in turn, will help strengthen the efforts to improve food and nutritional security, furthering national efforts to achieve Zero Hunger and to reduce malnutrition and hidden hunger.

Finally, while the measures outlined above can contribute to improving access and availability of food crops and wild edibles, the issue of staples security, particularly rice, requires special attention and targeted measures. Efforts to increase rice productivity in upland systems – wet paddy, shifting cultivation or rotational agriculture (also termed as dry upland cultivation in Laos PDR) – through improved practices and crop varieties may not be sufficient to address staples security needs of upland communities. This makes import from the lowlands and distribution through the public distribution system as in India or procurement from markets unavoidable in upland areas. Under such circumstances, it becomes imperative to enhance procurement and to improve access and availability to communities. Village or cluster level granaries run and managed by women's groups and federations is a potentially viable approach to strengthen storage and distribution of staples. Governments must consider, thus, the possibility of enlisting the services of women's groups and federations for this purpose so as to address the issue of staples security among remote, marginalised upland communities.

The examples discussed above look at possible transition options that focus on safeguarding food availability and dietary diversity. Specific recommendations for policy action are listed in the next section. These may inform policies and programmes aimed at facilitating transitions in shifting cultivation systems.

## Policy recommendations

1. Government and development programmes aimed at transforming shifting cultivation must include focused interventions for the promotion of home gardens to which food crops from shifting cultivation can be translocated with intercropping as an essential component to encourage, promote and maintain crop and dietary diversity. Home gardens with traditional and locally valued cereals, vegetables, horticulture and spices complemented with animal husbandry should be promoted as a focused intervention in all such projects and programmes.
2. Homegardens should be formally recognised as an agricultural landuse category and regular budgetary allocations made in developmental planning and annual budgets.
3. Choice of crops should be based on community consensus arrived at through participatory consultation processes and based on topography and local suitability. They must not be driven by market considerations alone. The combination of crops, horticulture, spices and animal husbandry should be locally contextualized and allow sequential harvesting for food availability through all seasons, thereby ensuring that these are culturally acceptable and build on community good practices.
4. Settled agriculture options such as plantations should be designed to promote multi-tiered, mixed cropping (horticulture/fruits intercropped with locally important and nutritionally valued cereals, vegetables and tubers) allowing for sequential harvesting throughout the year, thus ensuring seasonal food availability and resilience building. Reliance on a single crop or a few crops (e.g. rice) in a production system must be avoided and attempts made to have mixed cropping involving a wide choice of crops/varieties to ensure nutritional and income security and enhance the resilience of the systems.
5. Village or cluster granaries managed by women's groups or their federations and linked to the formal public distribution system of governments should be promoted for storage and distribution of food grains at the village or cluster level to ensure staples security. Local crops, traditionally grown for their nutritional value, should be encouraged and included in the list of food grains/food items procured by the government for distribution through the public distribution system. Projects should encourage governments to enlist and harness these organisations as essential extensions of the existing public distribution mechanism.

6. Action research on rainfed agricultural crops, particularly for selection of resilient varieties and for improving the productivity and yield of rainfed agricultural crops, must be made an important component of national agriculture research and development programmes. In addition, extensive scientific studies on the nutritional value of traditional crops and wild edibles should be made a critical component of the design of such programmes. Extension services and backstopping must be updated and modified accordingly.
7. Community seed banks and seed exchange mechanisms should be promoted and supported to gradually establish a local seed access mechanism.

### ADDITIONAL RECOMMENDATIONS SPECIFIC TO LAOS:

1. Revisit the Land and Forest Allocation Programme (LFAP) and explore means to increase the allocation of land for upland paddy cultivation.
2. Strengthen agricultural research to enable households to prolong the cultivation phase in rotational agriculture by increasing cultivation from the present one year to at least two, if not more. This will have a positive effect on fallow cycles and will result in a doubling of the fallow period aiding regeneration of vegetation. Agricultural extension should be strengthened with technical knowledge, understanding and skills appropriate to mountain contexts. Community-led extension as a formal complementary addition to existing extension services should be encouraged and promoted.
3. Reassess the Land and Forest Allocation Programme (LFAP) provisions for the purpose of increasing the allocation of plots for rotational agriculture by at least two additional plots, increasing thus the total entitlement from three to five plots. This increase of plots, together with the increase in cultivation phase by even one year, will significantly increase the fallow cycle. This will enable households to increase the fallow period by eight years, returning to a plot every ninth year. This can substantially aid forest regeneration, conserve forest resources and diversify the availability of wild food resources, thereby strengthening efforts to improve nutrition.
4. Enhance household access to fallows and the produces therein, encouraging communities to nurture forest gardens in such fallows. Governments should be encouraged to co-manage such gardens with concerned communities providing them rights and entitlements but also increasing accountability by making communities responsible for sustainable harvesting, management and conservation of these

resources. This will contribute to the government's efforts to conserve upland ecosystems and ensure access to communities to wild edibles which form an important constituent of the upland household's diet, thereby improving dietary diversity and nutrition.

## Notes

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