



Trade-offs and Synergies of SDGs related to Food and Nutrition Security

Policy Brief

Key messages:

- ✓ Identifying trade-offs and synergies between Sustainable Development Goals related to Food and Nutrition Security should be done at a subnational level instead of a national level.
- ✓ In Lao PDR, one third of the districts have a positive development in targets related to reducing poverty and stunting levels but this occurs at the expense of forest and natural land.
- ✓ Impact of bad nutrition behaviour, migration, land concessions, and natural disasters are possible explanations for local differences in trade-offs between Sustainable Development Goals, while better environmental regulation might be related to positive synergies.

The issue: Sustainable Development Goals related to Food and Nutrition Security

Southeast Asia is one of the regions in the world with highest level of undernourishment among children below the age of five. Poverty and food availability are key factors linked to this well-studied social issue. In order to improve food and nutrition security in this region, public policies promoting the substitution of subsistence-oriented to more market-oriented agriculture have been implemented.

Case-studies of agricultural transitions in Southeast Asia show that land use change often results in positive impacts on local incomes, but that the effect on food security is more mixed (Figure 1). The transition from traditional to more market-oriented agriculture in the region has primarily taken the form of increased intensification and expansion of agricultural areas. While this development often leads to improvement in income and increased employment opportunities, the impact on local food security, health, gender equality, and social equality is more mixed, and in many cases the outcomes are unfavourable for the local population. How specific land use transitions impacts the local population is highly contextual, depending on local conditions and what specific agricultural changes take place. A number of scientific studies have shown how land concessions and loss of land for traditional substance crops have increased the vulnerability of household's food supply.



Figure 1: SDG changes in relation to agricultural intensification (mostly changes from traditional to market oriented agriculture) in Southeast Asia. Each box represents one case published in scientific literature.



The analysis:

1. Progress on the Sustainable Development Goals

Lao People's Democratic Republic (Lao PDR) has experienced significant changes in the agricultural production. Agriculture accounts for around 65% of national employment and 67% of rural income. Policies like those proposed on the National Socioeconomic Development Plans (NSDP) emphasize commercialization of agriculture as a key objective to achieve progress on reducing poverty and improving food security. To improve national policies, it is important to understand how these impact local socioeconomic, as well as, environmental indicators. This can be achieved by tracing the progress of related Sustainable Development Goals (SDG), which include SDG 1 (End of Poverty), SDG 2 (Zero Hunger), SDG 3 (Good Health and Wellbeing), SDG 13 (Climate Action), and SDG 15 (Life of Land).

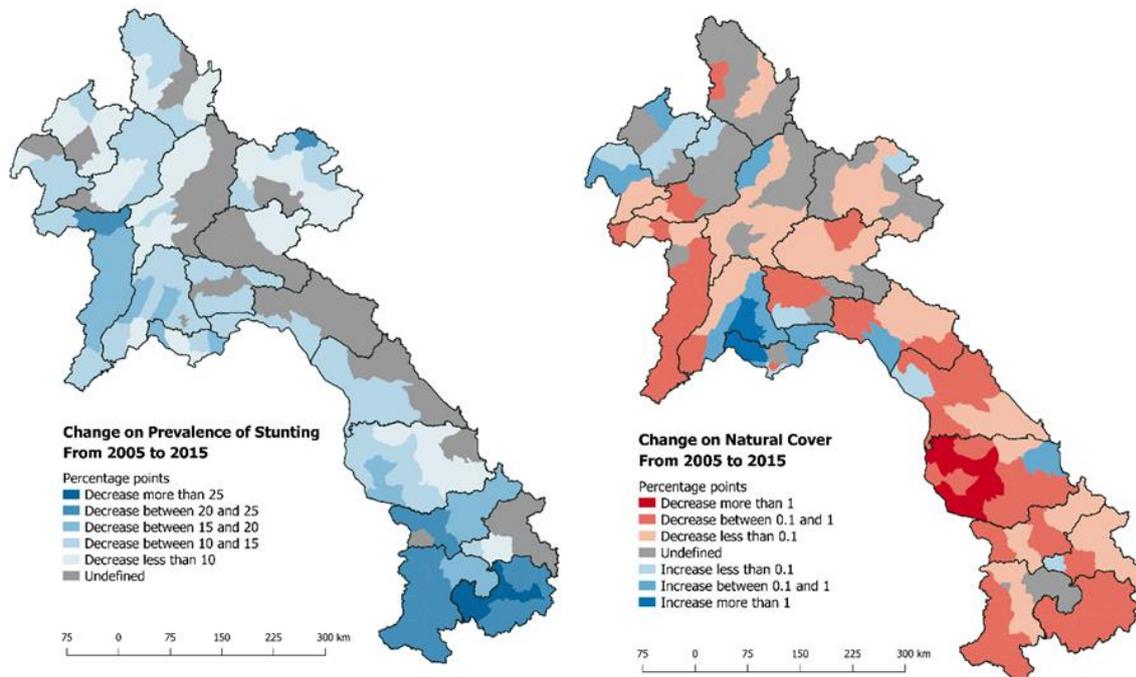


Figure 1: Changes in Stunting Rates and changes in Biodiversity habitat (natural land cover) between 2005 and 2015 in Lao PDR

At the national level, according to SDG tracker, there has been a reduction on poverty, undernourishment, and child mortality in Lao PDR, as well as an increase of forest areas (indicative for Climate Action as well as Life on Land). Nonetheless, comparing these SDGs at the subnational level the scenery is much different. When contrasting change of stunting¹ between 2005 and 2015 with the rate of change for natural areas² at the district level, we identify a trade-off between socioeconomic and environmental targets (Figure 2). Though most of the districts in the country seem to benefit from a decrease in stunting levels (as well as a decrease in poverty, which is not displayed here), also most of

¹ Stunting rates is the indicator selected to represent malnutrition of children below the age of five and is used as an indicator for food security (SDG 2).

² Natural cover not only includes forest cover, but also wetlands, grasslands and shrublands. This is a proxy indicator for the level of biodiversity (SDG 15).



these districts show a decrease in the proportion of forest and natural cover in their territory. These results indicate that progress in socioeconomic aspects in Lao PDR has generally been correlated with a negative impact on the environment.

2. Trade-offs and synergies within Lao PDR

Looking at the connection between multiple socioeconomic indicators, most districts in Lao PDR showed a decrease in stunting as well as poverty rates. This indicates the existence of **positive synergies** between SDG 1 and SDG 2 (Figure 3: Left). Only few districts located in the province of Saravane and Xayabury seem to have an improvement in malnutrition but an increase in poverty rates, thus a possible **trade-off** among indicators. This could be due to migration from the Vietnamese to the Thai border, as a results of better job opportunities, or the impact of flooding or draughts in the area.³

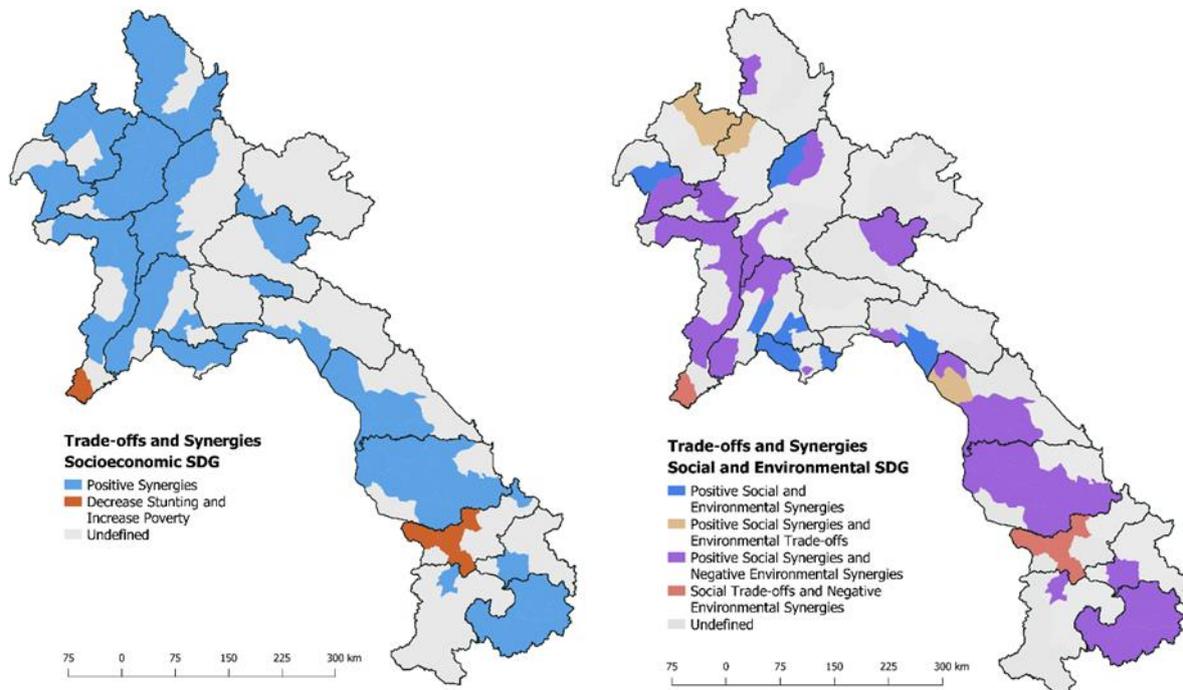


Figure 3: Trade-offs and synergies between multiple socioeconomic SDGs (left) and between socioeconomic SDGs and Environmental SDGs (right) at district level. Provincial boundaries are show for spatial reference.

For the environmental indicators, most districts appear to have a decrease in forest and natural land cover. This suggests possible **negative synergies** between SDG 13 and SDG 15, which is expected as both depend mainly on the changes in natural land cover and / or forest cover. Now, there are also a few districts with positive outcomes, in which natural and forest cover have maintained, or even increased, between 2005 and 2015. These areas are often related to National Protective Areas, like for Phou Phanang or Nam Kading Protective Areas, but not always. These areas could indicate **positive synergies** between SDG 13 and SDG 15. Nonetheless, it is important to identify why in other protective

³ All possible explanations for the local dynamics of these indicators are taken from the conclusions of the workshop “Trade-offs and Synergies among SDGs related to Food and Nutrition Security” undertaken in Vientiane on 17/02/2020.



areas this is not the case, and instead there is more forest and natural cover loss. A possible explanation is the increase in agricultural land, often also related to population growth in these areas.

3. Main take away

In overall, it appears that in most of the districts of Lao PDR there are positive synergies between socioeconomic indicators and negative synergies with environmental indicators. When comparing these results (Figure 3: Right), there is evidence that one third of the districts show a trade-off between the development in socioeconomic and the environmental indicators between 2005 and 2015 (purple areas). This development fits with an understanding that increases in the market-orientation of agriculture leads to immediate benefits for the well-being of the local population, like the improvement of infrastructure (e.g. roads and urban areas). However, this can undermine environmental sustainability goals and potentially damage the underlying natural resource base needed for the agricultural systems. Nevertheless, there are few areas in which positive synergies among all indicators can be spotted (blue areas). It will be important to understand what local dynamics in these areas have led to such positive outcome.

Policy recommendations

1. There is a need for development of better policy tools that mitigate trade-offs and increase synergies between socio-economic SDGs. Potential tools that can lead to sustainable implementations of policy priorities include: Improvement of agriculture extensions services; improving infrastructure links and connections between rural and urban areas; and strengthening of farmer collectives.
2. Stronger integration of policy planning is needed to mitigate trade-offs between socio-economic and environmental SDGs related to food security. Policies should be coordinated between different government agencies and ministries to ensure that multiple SDGs can be achieved simultaneously. Non-governmental organisations and multilateral organisations could be included in policy development and land use planning should be integrated when designing development plans for industry, health, and education sectors.
3. There is some evidence that large scale land concessions (both for agricultural development and for other purposes) can result in negative outcomes in relation to loss of natural areas and biodiversity, and lead to a loss of income and increased inequality for the local population. Large scale land concessions need to be monitored closely, therefore local government need tools to mitigate negative outcomes and to enforce existing legislation, including the mandatory Environmental Impact Assessments.
4. Better data collection is needed in order to understand the local variation in SDG development, including analysis of the conditions causing differentiated outcomes on different sources (surveys and censuses). Governments and organisations should also increase validation efforts of existing data sets and improve collection methods to ensure the validity of existing data.
5. Changes in local level SDG indicators may be the result of localized events, like natural disasters, migration, population increase, and the existence of natural protected areas. Additional analysis is needed to investigate how specific local conditions impact trade-offs and synergies between SDGs.

More information

This policy brief was generated based on results from the project Reducing trade-offs and increasing Synergies associated with improved food security in Lao PDR and Myanmar (NWO-WOTRO grant no. W07.303.108). www.sdgfood.environmentalgeography.nl