Stories from the field
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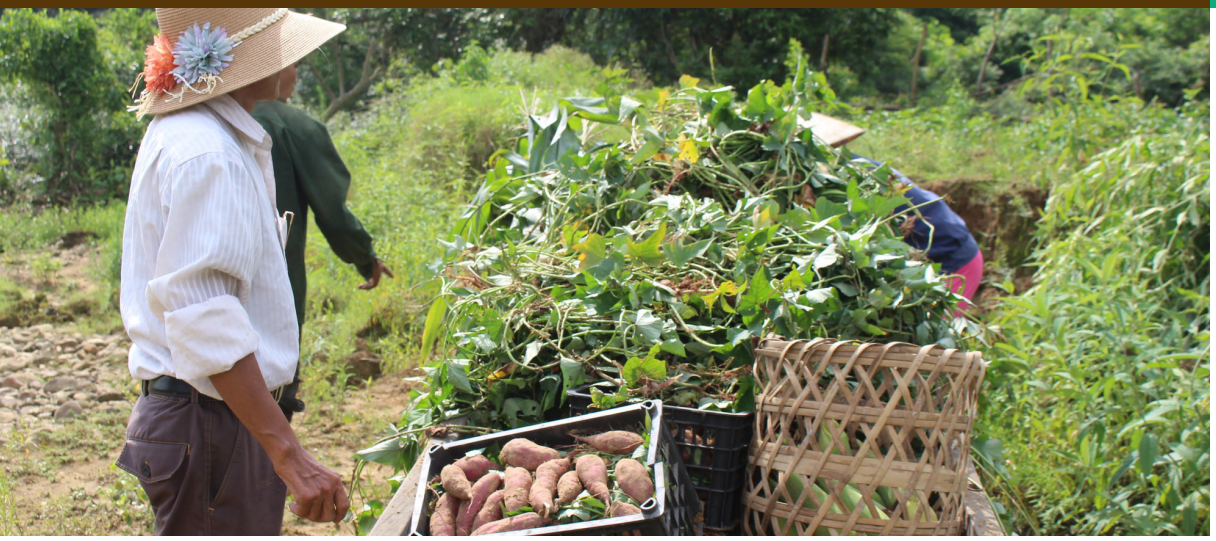

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Is Vietnam in need of supportive policies for promoting roots and tubers development? Insights from Quang Binh province

Research Highlights

- Despite their relative importance to the Vietnamese agri-food system, root and tuber crops are under-represented in terms of supportive policies at national level.
- The case of Quang Binh province shows the existence of potentially more conducive frameworks at provincial level, recognizing cassava as one the three provincial strategic crops and highlighting the roles of root and tuber crops in general in replacing other crops vulnerable to climate change.
- RTCs growers still face many challenges, including in terms of access to quality planting material, farm and post-harvest management practices, and the generation of added-value.
- With appropriate supportive policies, root and tuber crops could play a more prominent role in reducingpoverty, facing climate change effects, and contributing to improved diets.

Tropical root and tuber crops (RTCs – including cassava, potato, sweetpotato, yam, and taro) play a key role in food systems, contributing to nutrition and food security outcomes and the incomes of more than two billion people in developing countries. RTCs are the second most important crops in the developing world after cereals; with cassava, sweetpotato and potato being among the top-10 most widely cultivated crops. RTCs are used as food (fresh or processed), sources of income, animal feed, and in industrial processing. This brief presents a review of policies relevant to cassava and sweetpotato, the two main RTCs in Vietnam, and seeks to inform policy, decision makers and development practitioners, regarding the untapped potential and the role that RTCs could play in the Vietnamese agri-food system provided that a more supportive policy environment was in place.

Roots and tubers in Vietnam

With a global annual production of 285 million tons (MT), a third of which produced in Asia, cassava (Manihot Esculenta) is the fourth most important crop in developing countries, while sweetpotato (Ipomoea Batatas) is the seventh, with an average global production of 110 MT per year (FAO, 2017).

Until the early 1990s when Vietnam became self-sufficient in the production of rice, roots and tubers played a crucial role in ensuring food security in the country. However, cassava remains a key cash crop for over 1.1 million smallholder farming households, especially the poorest living in upland areas. The amount of land planted with cassava has doubled in the past 20 years, reaching 570,000 ha in 2016 (GSO, 2017), making it the fourth most widely cultivated crop. The export of cassava dry starch (760,000 tons in 2016) and dried chips (1.5 million tons) has also skyrocketed in the past 20 years, enabling cassava to become one of Vietnam's top agricultural exports (worth over $1 billion a year since 2012), and making the country the world's second largest cassava exporter after Thailand. Although sweetpotato is still a strategic crop for many rural households (see Box 1), its development has not followed the same pathway. Arable land allocated to sweetpotato has drastically declined over the past 20 years, from 305,000 ha in 1995 to 119,000 ha in 2016 (FAOSTAT, 2018), representing less than 2% of total cultivated land in Vietnam (Fig. 1 and Fig. 2). Annual production of cassava and sweetpotato was estimated at 10.9 and 1.3 million tons in 2016, respectively.

Climate-change adaptation potential

Vietnam is prone to natural disasters and has been ranked by the World Bank among the top five countries most likely to be affected by climate change. The food security and liveli-

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hoods of millions of Vietnamese are threatened by increasing temperatures (with extreme heat events), sea level rise (with increased salinity and soil erosion) and increased frequency of typhoons, floods and droughts. RTCs can play an important

Figure 1: Agriculture land use in Vietnam
(GSO, 2016)

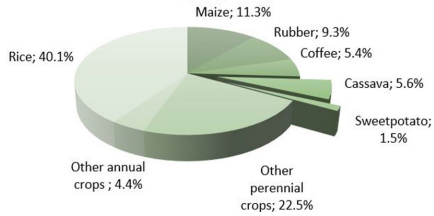
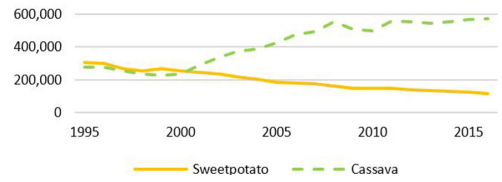


Figure 2: RTCs planted area (Has) in Vietnam
(GSO, 2016)



role in climate change adaptation strategies, enabling farmers to cope better with the effects of changing climates. Cassava for instance is well-known for its resistance to severe droughts and its ability to grow in poor soils even after the cultivation of other crops is no longer possible due to soil degradation.

Sweetpotato also shows great potential, thanks to its tolerance to droughts and increased salinity. Root and tubers are also less affected by typhoons as they grow underground. Furthermore, the short production cycle of sweetpotato facilitates more rapid recovery after extreme events such as typhons or floods.

In the near future, large areas in Vietnam are likely to become un-suitable for mahor crops due to the effects of climate change but scientists believe RTCs will be less effected or even benefit (see Fig. 3).

Relatively limited policy support at national level

Despite their relative importance to the Vietnamese agri-food system, RTCs are under-represented in terms of supportive policies. At national level, policies targeting roots and tubers are almost inexistent. Out of 1,419 policy documents issued in the past 10 years by the Ministry of Agriculture and Rural Development (MARD) only four mention RTCs (see Box 2). One decision of particular importance, the Master Plan on crop production development to 2020 (vision 2030), recommended decreases and increases in the area of land dedicated cassava and sweetpotato production respectively. Official statistics show that this has not been successfully enforced, (see Figure 2). Despite the lack of policy support, strong global demand has driven a doubling in the amount of land dedicated to cassava production has doubled over the last 20 years. Roots and tubers are similarly underrepresented in the policies issued by the by the office of the prime minister. Of the 131 policy documents issued by the office of the prime minister over the last decade--71 addressing climate change and 13 nutrition--only two mentioned RTCs, while not necessarily recommending support for their development.

The issuance of decree no. 1819/QD TTG by the office of the prime minister in November 2017 on the development of agricultural production from 2017 to 2020, also recommends a reduction in land dedicated to cassava cultivation. It does not mention any other RTCs. Decree No. 210/2013/ND-CP of December 2013, encourages public and private companies to invest in agriculture. In particular, it provides financial support (up to VND 2 billion) to agro-processing companies, to upgrade infrastructure and equipment. Although it is not directly aimed at RTC processing, it does mention cassava and sweetpotato among the beneficiary crops of the program.

RTCs do not fare any better in the policies issued by other ministries. Despite their potential to cope with climate change, in the agriculture- or climate change-related issued by the Ministry of Natural Resources and Environment. RTCs are also absent from the nutrition-related policies issued by the Ministry of Health (MOH).

Sweetpotato: A strategic crop for resilience

- **Disaster recovery**: short cycles (3-4 months) allowing flexibility in crop rotation and enabling quick recovery after extreme weather events, providing both food and cash.
- **Regular income**: extended harvesting periods (for both vines and tubers) providing food and income over time.
- **Pro-poor:** requires few inputs and can be grown on very small plots and marginal lands.
- **Nutritious:** Rich in Vitamin A (especially the orange-flesh varieties) and other micro-nutrients such as vitamins C, B, K.
- **Versatile:** Combination of food (both tubers and shoots) and animal feed uses.

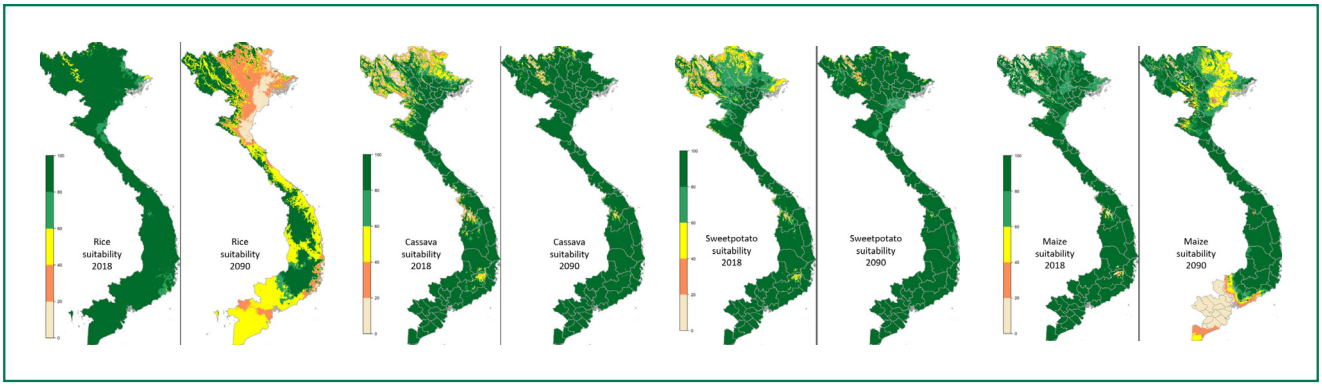


Figure 3. Land suitability maps 2018 and 2090 for rice, maize, cassava and sweetpotato

For example, the National Nutrition Action Plan, issued on 29 January 2018 by the MOH (Decree No. 718/QĐ-BYT), aiming at reducing Vitamin A deficiency among children to 11% by 2020, do not mention sweetpotato despite the fact that it is an excellent source of vitamin A and other micro-nutrients.

A more conducive framework at provincial level: The example of Quang Binh Quang Binh province is located on the north central coast of Vietnam. The region is particularly affected by climate change-related extreme weather events, such as storms, floods, and droughts. Like its neighbouring provinces, Quang Binh is characterized by a predominance of upland areas; with coastal plains making up the rest. Rice accounts for 65% of the land dedicated to crops every year, with cassava and sweetpotato being other important crops (7% and 5%, respectively – see Fig. 4). In line with national trends, land dedicated to cassava production in the province has increased(from 4,300 to 6,900 ha between 1995 and 2016, land dedicated to sweetpotato production has declined from 8,500 to 3,700 ha in teh same time period (see Fig. 5).

In the past 10 years, of 97 agriculture-related policies issued by Quang Binh's People Committee, only 3 referred to RTCs (see Box 3). In the Decree 1484/QĐ-UBND, approving the Master Plan for restructuring agriculture in Quang Binh, cassava was recognized as one of the three strategic crops of the province, along with rice and rubber. In 2018, two other decrees were issued in support of RTCs. Decree 1687/QĐ-UBND recognized two RTC-based processed products among Quang Binh outstanding products while decree 2383/QĐ-UBND, approving the Provincial Crop Production Plan for 2018-2020, highlighted the role of sweetpotato and cassava in replacing rice and other perennial crops vulnerable to climate change. These two decisions might reflect a progressive change in in the mindsets of local policymakers, recognizing the potential role of RTCs for climate change adaptation.

Challenges for RTC development

Previous improvements in terms of genetic and cropping practices have led to a dramatic increase in cassava and sweetpotato yields. However, these do not guarantee stable and sustainable profits over time to smallholders. The farm gate prices for cassava roots are highly volatile, mainly driven by demand for starch and dry chips in China, and affecting farmers' ability to rely on cassava cultivation to generate stable livelihoods. Most cassava roots are sold to starch processing factories, and farmers complain about low and fluctuating farm gate prices. There are limited incentives for smallholders to produce higher quality roots (higher starch content), especially for those relying on "harvester-collectors". In that scheme, where collectors also take care of the harvest, prices are set based on visual assessments of the field, irrespective of actual yield and starch content. Consequently, farmers have no control over the prices they receive and are dependent on collectors and factories – factories which are also heavily dependent on international starch prices. Despite this, most cassava production is oriented toward the export of dry starch. There is little or no support, for instance, to medium-scale wet starch processing factories, which supply local markets, have potential to generate more added-value locally, and are less dependent on international price fluctuations. Medium-scale cassava processors are actually disappearing. They struggle to secure their fresh cassava roots (as they cannot compete with large-scale companies when prices increase), have also faced serious environmental challenges (i.e. waste management) has forced several of them to close.' While smallholder cassava farmers can still access disease-free planting material (Quang Binh is still relatively untouched in terms of cassava disease, the situation is very critical in Vietnam's southern provinces, in Tay Ninh for example), this is not the case for sweetpotato growers who face limited availability of quality planting material. They struggle to access improved varieties and can barely verify the health of the seed they get.

This limits productivity, facilitates disease propagation, and constrains market opportunities. Similarly, sweetpotato growers are unable to respond to growing demand for new varieties (including orange-fleshed and purple-fleshed) and quality sweetpotato, for which market prices are much higher, as they have limited access to the required planting material. Moreover, despite the wide range of potential processed

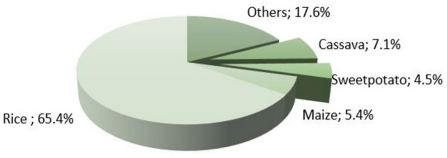


Figure 4: Agriculture land use in Quang Binh (GSO, 2016)

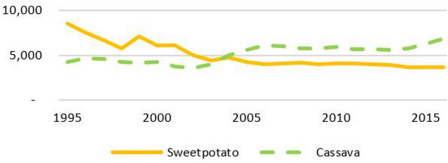


Figure 5: RTCs planted area (ha) in Quang Binh (GSO, 2016)

MARD's decisions mentioning RTCs

- **Decree 824/QĐ-BNN-TT**, issued on 16 April 2012, approves the Master Plan on crop production development to 2020 (vision 2030). It encourages reductions in land dedicated to cassava production to 500,000 ha by 2015, and to 450,000 ha by 2020. Sweetpotato production is expected to increase to 180,000 Ha by 2015. Other root and tuber crops, such as potato or yam, are not mentioned.
- **Decree 20/QĐ-BNN-KHCN**, issued on 1 January 2010, approves a list of agriculture programs and extension projects.
  The expansion of potato production is recommended for five provinces in northern Vietnam. (Thai Nguyen, Lang Son, Bac Ninh, Nam Dinh, and Thai Binh). The Root Crop Research and Development Center (RCRDC) is responsible for potato breeding activities. Neither cassava nor sweetpotato are mentioned.
- **Decree 3124/QĐ-BNN-KHCN**, issued on 19 December 2011, approves national agriculture extension projects including one for sustainable development of cassava in Northern Vietnam. It targets 450 ha and seeks to link smallholders to processing factories in order to increase yields and protect the environment.
- **Decree 2113/QĐ-BNN-KHCN**, issued on 5 August 2010, approves breeding programs for the 2011-2015 period. Sweetpotato and cassava breeding programs were mentioned, under the responsibility of the Hung Long Center.

Quang Binh People Committee's decrees mentioning RTCs

- **Decree 1484/QĐ-UBND**, issued on 10 June 2014, approves the Master Plan for restructuring agriculture toward 2020. The area of land dedicated to cassava is expected to stabilize at around 6,000 ha, mainly in upland areas. Focus is on supporting genetic improvement (high starch content varieties), consolidating production, and enhancing linkages between cassava starch factories and producers. Other roots and tubers are not mentioned.
- **Decree 1687/QĐ-UBND**, issued on 23 May 2018, recognizes Khoai Deo Hai Ninh (boiled, sliced and sun-dried sweetpotato) and Banh Bot Loc (wet cassava starch-based dumpling) as two of the outstanding processed agricultural products of Quang Binh province. These products will receive financial and technical support such as product promotion through trade fairs, subsidies and soft loans to upgrade infrastructure (including storage).
- **Decree 2383/QĐ-UBND**, issued on 23 July 2018, approves the Provincial Crop Production Development Plan for 2018-2020. It encourages farmers to prioritize crops in demand in markets and with potential for climate change adaptation. In the lowlands, producers are expected to convert the least productive rice areas to other crops. In the uplands, acacia and rubbers plantations, that were heavily affected by the last two major typhoons (Doksuri in 2017 and Wutip in 2013) are envisioned to be partially replaced by climate change resilient crops, including sweetpotato and cassava.

sweetpotato products, the vast majority of sweetpotato is sold fresh and very few businesses engage in processing and other forms of value addition.

Policy recommendations

- Recognize the potential of RTCs policies and action plans in strengthening food security, nutrition and adaptation to climate change;
- Further promote the reallocation of unsuitable land for rice (in lowland) and other crops, including perennial crops (in upland) to roots and tubers;
- Strengthen the capacities of the national research system in terms of breeding, seed system, post-harvest and value chain development;
- Foster collaboration between international research institutions and provincial agriculture extension centers to test and disseminate improved varieties (e.g. short cycle varieties, disease resistance);
- Support the emergence of a seed system for RTCs;
- Develop public-private partnership models to strengthen relationships and funding for research and extension;
- Enhance access to quality planting material of market-preferred varieties;
- Strengthen capacities of public agents (e.g. extension agents, DARD officers) regarding RTC cropping practices (including climate-smart agriculture practices);
- Set-up RTC demonstration plots at commune level, the provision of along with technical training to traders, processing companies, etc.
- Support small-scale initiatives for RTC processing and value addition;
- Support smallholder farmers to access alternative domestic markets, to diversify export markets, as well as support cassava processing companies to improve starch quality in to generate more added value that remains in Vietnam.

About FoodSTART+

Food Resilience Through Root and Tuber Crops in Upland and Coastal Communities of the Asia-Pacific (FoodSTART+) is a three-year project (2015-2018) that builds on and expands the scope of the concluded IFAD-supported Food Security Through Asian Root and Tuber Crops (FoodSTART) project. It is coordinated by the International Potato Center (CIP) and implemented in collaboration with the International Center for Tropical Agriculture (CIAT) in Asia. The project is also working closely with the CGIAR Research Program on Roots, Tubers and Bananas (RTB) and the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). It is funded by the International Fund for Agricultural Development (IFAD) and the European Union (EU).

The project aims to enhance food resilience among poor households in upland and coastal communities of the Asia-Pacific region through introducing root and tuber crops (RTCs) innovations.

To achieve this goal at scale, the project develops, validates and implements effective partnership strategies with IFAD investment projects to promote RTCs for food security.

In particular, FoodSTART+ is implemented in partnership with Livelihoods and Access to Markets Project (LAMP), India; Smallholder Livelihood Development Project (SOLID),

Indonesia; Fisheries, Coastal Resources and Livelihood Project (FishCORAL) and Integrated Natural Resources and Environmental Management Project (INREMP), Philippines; and Sustainable Rural Development for the Poor Project (SRDP), Vietnam.

The project's key components are:

1. Project start-up and scoping studies including mapping on food vulnerability of RTC production and use;
2. Research for development (R4D) partnership development;
3. Needs and opportunities analysis on gender sensitive RTC innovations;
4. R4D action planning and launching; and
5. Documentation and knowledge products development.

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