CHAPTER 4  ECONOMIC PROFILE OF HA TINH FOR VULNERABILITY ASSESSMENT AND EBA

4.1. Introduction

The objective of the macro-level analysis economic scoping exercise for EbA Vulnerability Assessment is to identify the most important economic activities and assets at provincial level that need to be considered as part of the climate change vulnerability assessment. This economic profile complements the social profile and the ecological profile also prepared for Ha Tinh, and the three of them together are used to identify the Socio-Ecological Systems (SES) found in the province. These SES then form the basis for the climate change impact assessment.

4.2. Key Economic Factors for the Macro-scale Assessment of Ha Tinh

4.2.1. Overview of Questions and Data

This section presents information to answer key practical questions on economic issues for climate change vulnerability assessment and adaptation planning at the provincial level. It does not attempt to rehearse a full economic profile of Ha Tinh. The macro-level study is intended to use secondary data only and, while many interesting and relevant questions could be posed at provincial level, there is only a limited number of economic factors for which sufficiently comprehensive data already exists at this level or that need to be discussed.

The objective of the exercise is to identify the most important economic activities and assets at provincial level that need to be considered as part of the climate change vulnerability assessment. Thus, we attempt to answer a few simple questions:

- What is the current structure and status of Ha Tinh’s economy?
  - Comparison GDP sector; GDP growth/trends; export, employment; land use etc.
  - Currently, what are the most important economic sectors?
  - Who is involved/most important (state, private, smallholder)
- What plans are there for future development?
- What are the key activities within those sectors?
- What are the key assets supporting economic activity and where are they located?
  - Transport (road, rail, ports, airports), electricity, water

The findings will then inform the identification and description of Ha Tinh’s socio-ecological systems (SES), and the prioritisation of a small number of the SES for the micro-scale vulnerability assessment.
For readers at the provincial level, much of the information provided below will be familiar - but presented in a new concise and useful way. For readers outside the province - it is intended to provide a concise overview of the economy, highlighting factors to consider in EbA planning.

4.2.2. Overview of the Status and Structure of the Provincial Economy

4.2.2.1. Provincial Role/Position in national economy

The North-central Coast of Vietnam is still one of the economically less prosperous regions, compared with other parts of the country. In 2010, the poverty rate of the North-central and Central Coast region was 20.4%, just less than the North-west region and the Central Highlands. This high poverty rate may be explained both by distance from major economic centres and the harsh climatic conditions that this region suffers annually. Moreover, until recent times, much of the economic activity in the region has been related to agriculture, and the overall scale of production has been small and scattered. The government has recognized this challenge and has been taking actions to change this situation. In terms of GDP per capita, the North-central Coast ranked second from bottom, just above the North-western region. Of Vietnam’s 63 provinces nationwide, Ha Tinh represents 1.8% of the total area, 1.5% of the population, and only 1.1% of the national GDP (Ha Tinh PC 2012).

The above notwithstanding, Ha Tinh does have some comparative advantages and opportunities for future development. The province is conveniently located for cooperation and trade with neighbouring countries. The major transport arteries include Highway 1A, the Ho Chi Minh road, the railway running north-south, as well as Highway 8A, and Highway 12A running east-west. In addition, Ha Tinh also has Cau Treo international border gate with Lao PDR, and the deep water port of Vung Ang - Son Duong which facilitates trade with countries in the region. The strengthening sub-regional development along the East-West Economic Corridor of the Greater Mekong Sub-region provides opportunities for Ha Tinh development and economic integration (Ha Tinh PC 2012).

4.2.2.2. GDP

In 2014, Ha Tinh had a GDP per capita equivalent to USD 1,674 (up from USD 690 in 2010) and a total GDP of slightly over US$2 billion, equivalent to 1.1% of national GDP. In 2014, only 26% of the budget came from the Province’s own funds, with 74% coming from central budget transfers and ODA (Ha Tinh Statistical Year Book, 2015).

4.2.2.3. Structure of the Economy

4.2.2.3.1. Three Sectors

In Vietnam, it is the convention to report the structure of the economy in terms of the GDP contributions of three main “sectors”: i) agriculture, forestry and fisheries (AFF) - the main land-using sectors; ii) industry and construction; and iii) other areas, including tourism. Given that AFF dependent livelihoods are generally more vulnerable to climate
change than industrial or service-sector related livelihoods, then somewhat more detailed attention is given to AFF in this report. Trade and services currently accounts for 31% of GDP, industrial production and construction 38% agriculture forestry and fisheries 20% of GDP and product tax 11%.

4.2.2.3.2. GDP contributions: main sectors

Vietnam’s GDP in 2015 was 193.6 billion USD, up from 115.93 billion USD in 2010. Of this, in 2015, 18% was from AFF, 39% from industry and construction; 42% was from others (services and tax). The GDP share of all three sectors greatly increased since 2010, AFF is doubled, Industry and Construction is over fivefold and others are nearly triple (Statistic Publishing House, 2015).

Gross output (at 2014 current prices) is 90.4 trillion VND (equivalent to 67.8 trillion at 2010 constant prices) up from 32.2 trillion VND in 2010 - a very impressive rate of increase. Of 2014 gross output, 46.17% is from construction, 24.20% from services, 17.06% from agriculture, forestry and fisheries, and 12.75% from industry. Between 2010 and 2014, there has been a 9% decline in the share of agriculture; 8% decline in the share of services, and a 2.8% decline in the share of industry. At the same time the share of gross output provided by construction has risen by 20%.

In 2010, around 23% of economic activity was state controlled, around 68.5% was non-state, and less than1% was through foreign investment, the rest accounts for tax and subsidy. However, by 2015 the foreign investment sector had grown to account for 14.7% of gross output with state responsible for only 16.7% and non-state for 55% (of which collective =0.8%; private business =19.8%; and household =34.4%) (Statistic Publishing House, 2015). Only 2 FDI projects were active in the province in 2006. Between 2010 and 2014, a total of 44 Foreign Direct Investment (FDI) projects were licensed, with a total registered capital of 364 billion USD; 10 billion. Of these, three-quarters were for manufacturing activities, and coming from Taiwan, followed by a much smaller number of projects in accommodation and food service activities. In 2014, 6 new FDI projects in mining and quarrying were also approved (all from Taiwan) with a relatively modest combined registered capital of USD 17 million, and one new accommodation and food service FDI activity (from the Czech Republic) was approved with a registered capital of USD 25 million.

Within agriculture, forestry and fisheries the value per unit of cultivated area reached an average of 60 million VND/ha/year in 2015; of this, 48.81% is from animal husbandry in 2015. Food crop production reached 53.3 thousand tons; aquaculture production reached 44,119 tonnes; and meat output reached 86,976 tons, representing an overall increase of 10.7% compared with 2013. Restructuring of the agricultural sector in Ha Tinh is emphasising increasing the scale of production, and modernising and mechanising the sector with more production originating from larger enterprises, and increased private investment (Ha Tinh Statistical Year Book, 2015).
Within industry and construction, as mentioned above, construction is by far the largest component. Gross output of construction in 2014 was 41 trillion VND, of which foreign investment accounted for 23 trillion (56%). Within industry per se, manufacturing accounts for about 5% of total GDP; production and distribution of electricity and gas for 1.6% of GDP; and mining and quarrying for 1% of GDP. In the mining sector, regulations on price calculation of royalties and payments associated with mining rights were passed under Decree 203/2013/ND-CP and applied to 129 mines, bringing in total revenue of 457.6 billion VND in 2014. “Handicraft” factory is a growing area. With gross output up 22.93% in 2014 compared with 2013.

Within services, wholesale and retail trade accounts for 11.6% of GDP; education and training 4.5%; transport and storage 3.8% accommodation and food services 2%. Activities of the Communist party, socio-political organisations, public administration, defence and compulsory security also account for 5% of GDP.

The remarkable economic growth in Ha Tinh over the last 5 years has largely been led by a boom in construction and a significant increase in foreign investment. The main thrust of Ha Tinh’s economic development strategy is to rebalance the provincial economy towards heavy industry and services, so that by 2020, the relative contributions of agriculture, industries and services are 13%, 55% and 32%, respectively. Overall, the economy is expected to grow at 18% pa and exports to increase 5-fold in value to USD 2,000 million by 2020.

A key focus of industrial development in the province is to ensure timely handling of any difficulties and challenges to accelerate implementation of industrial development and construction projects - including the acceleration of water supply projects to the Vung Ang special economic zone, speeding up the implementation of the Formosa facilities, etc. Saigon Brewery has increased its capacity for canned beer production.

4.2.2.4. Population

From 2006 to 2014, the population of Ha Tinh province slightly declined from 1.277 million to 1.261 million, with the annual average rate of population growth of -0.16%. As a result of this population trend, Ha Tinh province in 2010 accounted for only 1.41% of Vietnam’s population. The decrease in the total population was derived from migration to other provinces in Vietnam or to other countries.

Nearly 85% of the Ha Tinh population still lives in rural areas. Of the 13 district units, so far only 3 are considered as urban centres - the city of Ha Tinh, towns of Ky Anh and Hong Linh. However as well as migration out of the province, there is a very clear trend of migration from rural to urban areas within the province. So while the overall population of Ha Tinh declined in the last decade, the rural population declined even more so, the urban population increased. During the periods 2001-2005, and 2006-2010, urbanisations growth rates were 9.1% and 8.3% in Ha Tinh city; and 3.8% and 13.3% in Hong Linh town, respectively, the Ky Anh town has been just established in 2015. In 2015 overall current urbanisation rate is 12% and by 2030 it is expected to be 48% (DOIC, 2015).
4.2.2.5. Employment

Wholesale and retail trade; manufacturing; construction; as well as accommodation and food services, are the biggest sources of employment in all types of enterprises. Overall employment is increasing with over 16,000 additional people employed in these four sectors alone, between 2010 and 2014.

**Table 0.1: Employment in enterprises in main sectors in Ha Tinh in 2015**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>10,152</td>
<td>14,438</td>
</tr>
<tr>
<td>Manufacturing (mostly metal products and non-metallic mineral products)</td>
<td>25,759</td>
<td>20,333</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>3,792</td>
<td>2,549</td>
</tr>
<tr>
<td>Wholesale and retail trade, and vehicle repair</td>
<td>42,110</td>
<td>50,941</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>10,337</td>
<td>13,863</td>
</tr>
<tr>
<td>Transport and storage</td>
<td>4,795</td>
<td>5,365</td>
</tr>
<tr>
<td>Real estate</td>
<td>641</td>
<td>4,472</td>
</tr>
<tr>
<td>Other services</td>
<td>2,734</td>
<td>4,364</td>
</tr>
</tbody>
</table>

*Source: Ha Tinh Statistical Year Book, 2015 (Note: only sectors employing more than 2,000 people have been listed)*

4.2.2.6. Labour Migration

More than 12,000 workers migrate out of Ha Tinh each year, with about half going to other provinces in Vietnam, and half going abroad. In the past 5 years, the proportion of people in the province migrating abroad has increased, mainly from the 5 coastal districts. Government policies also contributed to this. The Government of Vietnam has encouraged labour exports to achieve employment, increase income, and enhance the skills of the workforce. Anyone who wishes to, can join the labour export programme, they don’t have to be poor. But poor households can get loan support and support with passports and visas and other administrative procedures (DOLISA, 2015).

In total more than 51,000 people from Ha Tinh are now working abroad in more than 25 countries including Japan, South Korea, Taiwan, Eastern Europe, and the Middle East. More than 35,000 went under the MOLISA international cooperation programme. Another 16,000 were spontaneous migrants/self-arranged mainly to Thailand and Lao PDR (there are more than 15,000 people from Ha Tinh working in Thailand). HaTinh DOLISA is now about to implement a review programme on spontaneous migrants to Thailand and Lao PDR as part of a MOLISA national review in preparation for AFTA and
AEC. Data on returning migrants and job availability for them after returning is currently insufficient (DOLISA, 2015).

One of the main reasons for people to migrate is to seek better employment opportunities. Ha Tinh Province is considerably below the national average in creating new employment opportunities - while jobs in Vietnam have increased at a rate of 2.8% annually from 2000 to 2010, in Ha Tinh the figure is only 0.9%. Most migrants are working in the agricultural sector in Ha Tinh, where there is strong seasonal unemployment. Also, some people migrate in search of work and higher income in industries and services. These are jobs that are difficult to find in Ha Tinh. Others leave Ha Tinh to seek educational opportunities and more intensive training to improve their employment prospects. They rarely return to work in Ha Tinh, where there are fewer higher level jobs to suit their new skills and qualifications.

According to the Living Standards Survey of households, the average monthly per capita income in 2010 in Ho Chi Minh City was 2,737 million VND, compared to 2,013 million VND in Hanoi, 1,897 million VND in Danang and only 839,700 VND in Ha Tinh. Ha Tinh benefits however from remittances from its overseas workers. For example, in 2010 migrant workers sent 1,200 billion VND back to Ha Tinh, equivalent to a third of the province’s export earnings (Ha Tinh PC 2012).

In addition to migration of Ha Tinh labour out of the province, there is also migration of Vietnamese and overseas labour into the province. The Vung Ang economic zone has 40,000 employees - nearly 8,000 are foreigners including Chinese, Taiwanese and others from a total of 25 countries from Asia, Europe, America and Africa. Of the other 32,000 Vietnamese nationals employed in Vung Ang, 50% are from Ha Tinh but the rest are from another 61 towns and provinces across Vietnam. Many of these are involved in the construction work. In another 2-3 years when the infrastructure is fully developed, this number will go down considerably.

Nationwide nearly 200,000 Graduate from university temporarily have no jobs. Many come back to their home towns because they cannot find jobs. Information on unemployed returning graduates in Ha Tinh was not available. DOLISA is the key agency implementing Decision # 156 - providing vocational training support for rural labour to help them shift from one job to another - to improve productivity and improve income. This includes short training courses for unemployed labour.

There are some social problems associated with high levels of migration. Firstly, in many villages the number of young working age adults is reduced, and young children of migrant workers are often left in the care of grandparents or other relatives. The Womens’ Union established a “When mother is far from home club” to support children and adolescents. Secondly, in the Vung Ang Economic Zone, there are elevated levels of crime, sex workers, drug-related crime, etc. The local government is very concerned about this existing problem. Some groups are also trying to take advantage of situation to foment unrest between Chinese workers and Vietnamese people.
4.2.2.7. Land use

Land use patterns provide a different set of insights into an area’s economy. Table 4.2 presents figures for Ha Tinh land use in 2015, while Table 4.3 presents a breakdown by districts, and Map 4.1 shows the distribution of the principal land uses. Reflecting the province’s mountainous terrain and narrow coastal plain, the principal land use in the province is forestry, occupying 58% of the land, followed by paddy rice occupying around 11%.
<table>
<thead>
<tr>
<th>ID</th>
<th>LAND USE TYPES</th>
<th>Total (ha)</th>
<th>Rural areas</th>
<th>Urban areas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total natural land</td>
<td>59,971.66</td>
<td>40,875.57</td>
<td>18,996.18</td>
</tr>
<tr>
<td>1</td>
<td>Agricultural land (including)</td>
<td>476,157.55</td>
<td>230,931.5</td>
<td>112,115.8</td>
</tr>
<tr>
<td></td>
<td>Cultivation land</td>
<td>120,548.33</td>
<td>22,288.03</td>
<td>62,402.6</td>
</tr>
<tr>
<td></td>
<td>Annual crop</td>
<td>86,709.61</td>
<td>25,162.3</td>
<td>44,834.6</td>
</tr>
<tr>
<td></td>
<td>Paddy rice</td>
<td>64,691.09</td>
<td>13,889.4</td>
<td>37,255.6</td>
</tr>
<tr>
<td></td>
<td>Grassland for castle</td>
<td>438.32</td>
<td>35.10</td>
<td>4.40</td>
</tr>
<tr>
<td></td>
<td>Other annual crops</td>
<td>21,580.20</td>
<td>10,921.9</td>
<td>7,535.0</td>
</tr>
<tr>
<td></td>
<td>Perennial trees</td>
<td>33,838.72</td>
<td>19,771.80</td>
<td>17,568.0</td>
</tr>
<tr>
<td></td>
<td>Forestry land</td>
<td>350,882.67</td>
<td>642.68</td>
<td>46,567.4</td>
</tr>
<tr>
<td></td>
<td>Production forest land</td>
<td>161,244.38</td>
<td>455.16</td>
<td>1,443.91</td>
</tr>
<tr>
<td></td>
<td>Protection forest land</td>
<td>115,040.48</td>
<td>187.52</td>
<td>2,509.83</td>
</tr>
<tr>
<td></td>
<td>Special use forest land</td>
<td>74,597.81</td>
<td></td>
<td>703.90</td>
</tr>
<tr>
<td></td>
<td>Aquacultural land</td>
<td>4096.18</td>
<td>159.70</td>
<td>245.14</td>
</tr>
<tr>
<td></td>
<td>Land for salt production</td>
<td>423.70</td>
<td></td>
<td>10.12</td>
</tr>
<tr>
<td></td>
<td>Other agricultural land</td>
<td>206.67</td>
<td>2.74</td>
<td>58.42</td>
</tr>
<tr>
<td>2</td>
<td>Non-agricultural land</td>
<td>849,611.15</td>
<td>176,046.0</td>
<td>636,012.1</td>
</tr>
<tr>
<td></td>
<td>Residential land</td>
<td>86,542.9</td>
<td>74,735.2</td>
<td>11,540.4</td>
</tr>
<tr>
<td></td>
<td>Residential land in rural areas</td>
<td>75,002.25</td>
<td>74,735.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Residential land in urban areas</td>
<td>11,540.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Special use land</td>
<td>428,746.66</td>
<td>94,274.9</td>
<td>297,456</td>
</tr>
<tr>
<td></td>
<td>Land for government offices</td>
<td>293.09</td>
<td>157.21</td>
<td>98.00</td>
</tr>
<tr>
<td></td>
<td>Military land</td>
<td>18,925.0</td>
<td>28.98</td>
<td>104.69</td>
</tr>
<tr>
<td></td>
<td>Security land</td>
<td>1,118.73</td>
<td>1.83</td>
<td>21.84</td>
</tr>
<tr>
<td></td>
<td>Business land</td>
<td>55,085.2</td>
<td>226.25</td>
<td>365.73</td>
</tr>
<tr>
<td></td>
<td>Public land</td>
<td>350,686.86</td>
<td>90,132.22</td>
<td>238,554.6</td>
</tr>
<tr>
<td></td>
<td>Religious land</td>
<td>337.01</td>
<td>252.53</td>
<td>35.31</td>
</tr>
<tr>
<td>ID</td>
<td>LAND USE TYPES</td>
<td>Total (ha)</td>
<td>In which</td>
<td>Urban areas</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------</td>
<td>------------</td>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>Total natural land</td>
<td>59,971.66</td>
<td>40,875.57</td>
<td>18,968.18</td>
</tr>
<tr>
<td>2.4</td>
<td>Graveyard land</td>
<td>4783.45</td>
<td>86.41</td>
<td>267.47</td>
</tr>
<tr>
<td>2.5</td>
<td>Water surface</td>
<td>28273.85</td>
<td>363.29</td>
<td>1927.99</td>
</tr>
<tr>
<td>2.6</td>
<td>Other non-agricultural land</td>
<td>37.89</td>
<td>1.36</td>
<td>0.75</td>
</tr>
<tr>
<td>3</td>
<td>Unused land</td>
<td>38598.96</td>
<td>177.82</td>
<td>1396.48</td>
</tr>
<tr>
<td>3.1</td>
<td>Unused flat land</td>
<td>15049.89</td>
<td>135.62</td>
<td>1100.58</td>
</tr>
<tr>
<td>3.2</td>
<td>Unused mountain and hill side</td>
<td>21358.41</td>
<td>42.20</td>
<td>295.31</td>
</tr>
<tr>
<td>3.3</td>
<td>Rocky mountain without trees</td>
<td>2190.66</td>
<td></td>
<td>0.59</td>
</tr>
</tbody>
</table>

Source: DONRE Ha Tinh province, 2015
### Table 0.3: Major Land uses in Ha Tinh by District (as of 31 Dec. 2015)

<table>
<thead>
<tr>
<th>Name of city/district</th>
<th>Total area (ha)</th>
<th>Agricultural production land (ha)</th>
<th>Forest land (ha)</th>
<th>Special use land (ha)</th>
<th>Homestead land (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>599,031</td>
<td>152,563</td>
<td>322,107</td>
<td>41,498</td>
<td>11,794</td>
</tr>
<tr>
<td>Ha Tinh city</td>
<td>5,655</td>
<td>2,475</td>
<td>72</td>
<td>1,297</td>
<td>808</td>
</tr>
<tr>
<td>Hong Linh</td>
<td>5,897</td>
<td>2,274</td>
<td>1,217</td>
<td>963</td>
<td>297</td>
</tr>
<tr>
<td>Huang Son</td>
<td>109,680</td>
<td>16,539</td>
<td>83,019</td>
<td>3,467</td>
<td>963</td>
</tr>
<tr>
<td>Duc Tho</td>
<td>20,349</td>
<td>11,219</td>
<td>3,161</td>
<td>2,384</td>
<td>947</td>
</tr>
<tr>
<td>Vu Quang</td>
<td>63,766</td>
<td>6,178</td>
<td>47,640</td>
<td>1,352</td>
<td>352</td>
</tr>
<tr>
<td>Nghi Xuan</td>
<td>22,246</td>
<td>8,345</td>
<td>4,724</td>
<td>2,090</td>
<td>717</td>
</tr>
<tr>
<td>Can Loc</td>
<td>30,213</td>
<td>15,109</td>
<td>5,736</td>
<td>3,653</td>
<td>1,139</td>
</tr>
<tr>
<td>Huang Khe</td>
<td>126,274</td>
<td>26,005</td>
<td>87,383</td>
<td>3,221</td>
<td>899</td>
</tr>
<tr>
<td>Thach Ha</td>
<td>35,391</td>
<td>15,057</td>
<td>7,448</td>
<td>5,057</td>
<td>1,672</td>
</tr>
<tr>
<td>Cam Xuyen</td>
<td>63,635</td>
<td>17,684</td>
<td>31,484</td>
<td>4,067</td>
<td>1,730</td>
</tr>
<tr>
<td>Ky Anh</td>
<td>75,960</td>
<td>18,760</td>
<td>40,003</td>
<td>5,973</td>
<td>939</td>
</tr>
<tr>
<td>Loc Ha</td>
<td>11,743</td>
<td>5,619</td>
<td>1,701</td>
<td>1,383</td>
<td>802</td>
</tr>
<tr>
<td>Ky Anh</td>
<td>28,222</td>
<td>7,299</td>
<td>8,519</td>
<td>6,591</td>
<td>529</td>
</tr>
</tbody>
</table>

*Source: Ha Tinh Statistical Yearbook 2015*

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1 The Ky Anh town was just split-up from Ky Anh district in 2015
4.2.2.8. Economic Models

The Vung Ang industrial complex in southern Ha Tinh (see Photo 4.1) appears to be providing a model for provincial economic thinking. This new Taiwanese/Chinese owned investment will concentrate on steel production, planned to use the local iron ore deposits of Thach Khe, and the development includes two deep water ports, coal-fired electricity plants, new roads and bridges and integrated residential facilities for migrant workers. Construction of the complex levelled Ha Tinh’s finest coastal sand dunes, and led to resettlement of many households. It is protected from extreme climatic events and sea level rise by a 10m high sea wall. It is unclear what impact this is having on adjacent coastal areas. Presently 24 different businesses and 94 contractors are working there. Income per capita is 5-10 million dong.
There are other effective economic effective models at much smaller scales, in fields such as animal husbandry, horticulture, aquaculture, forestry, processing, trade and services (Ha Tinh PC 2013). Many models of production and business efficiency are being replicated, and the number of cooperatives, cooperative groups and businesses in the agricultural sector has increased rapidly (Ha Tinh PC 2014). In 2015, restructuring of the agricultural sector achieved significant results, helping motivate development and leading to a production value growth rate of agriculture, forestry and fisheries of 7.96%. Some major agricultural products are starting to attract big business to invest, increasing the scale of production, upgrading quality and gradually integrating into higher value market chains. This is happening for example for high quality beef cattle, pigs and shrimp farming.

The Consultative Group on Social Policy Coordination established by the Provincial New Rural Development Office disseminates information to residents quickly and efficiently, helping people to easily access bank loans to invest in production development.

4.2.2.9. New Rural Development Criteria

In the New Rural Development Programme there are 19 criteria that communes need to follow. In Ha Tinh the national new rural development program focuses on improving transport, irrigation, electricity, telecommunications and housing in rural communities. Targets include providing 100 liters/person/day of potable water, and upgrading and expanding rural roads to reach the minimum width of 4m. The program also contributes to improving schools, cultural infrastructure, and the health care system in rural areas (Ha Tinh PC 2012). By the end of 2014, 26 communes had reached all 19 criteria; 8 communes achieved from 13-18 criteria; 135 communes achieved from 7-12 criteria and 65 communes achieved less than 7 criteria (Ha Tinh PC 2014). By late 2015, another 26 rural communes had achieved all new standards, bringing the total number to 52
4.2.3. Economic development: performance and plans

While Ha Tinh is one of the poorest provinces of Vietnam, it is experiencing remarkably rapid growth and provincial government fully intends for this growth to continue. In identifying its development orientation to 2020, Ha Tinh provincial planning must be consistent with the strategic planning of sectors and products the country, including the zoning of the Central Coast 2020 which has been approved by the Prime Minister in Decision No. 61/2008/QĐ-TTg dated 9/5/2008. The key areas in this planning include:

a) Strengthening infrastructure

Central Coast Regional Infrastructure development should be consistent with the coastal area, including land and marine infrastructure. Ha Tinh will closely implement plans to build highways and important provincial roads, as well as upgrading the existing roads to expand capacity. Moreover, Ha Tinh will support the construction of a high-speed rail route, and will expand and upgrade the Vung Ang port and construction of infrastructure systems to support the provision of water, electricity and waste management more efficiently.

b) Development of the marine economy

With the potential of a large port cluster, Ha Tinh will have to build and develop the urban centers of the province to support maritime operations. Ha Tinh must also promote the development of Vung Ang economic zone by attracting more investment capital to the region.

c) Poverty alleviation and development of disadvantaged areas along the coastline of Vietnam:

Ha Tinh needs to improve both the health system and the education system to ensure that the physical facilities of schools and health facilities meet the new national standards. Specifically, the province needs to ensure that 100% of primary schools reach the national standards by 2015; and that 70% of high schools and 50% of junior high schools meet national standards in 2020. Ha Tinh also needs to focus on development of the social security system and the implementation of social policies to support the lives of poor populations.

d) Developing industry, services and agricultural activities:

The central coastal provinces should strengthen investments in technological innovation and product design in a list of selected industrial products including oil, petrochemical products, energy, metallurgy, electronics and shipbuilding. Ha Tinh will play an important role in industrial operations. Ha Tinh also needs to ensure agricultural and forestry activities in the province are unified, and consistent with agricultural and forestry activities of the entire central coastal area. To do this, the province will have to focus on the application of high technology to ensure the quality and safety of food.
and achieve higher yields. Ha Tinh also needs to pay continued attention to the protection and sustainable development of forest resources in the province.

e) **Protecting the marine and coastal environment:**

In the development plan, Ha Tinh will continue to implement initiatives to protect the environment, and conserve natural resources, while minimizing the impact of the development of the Vung Ang Economic zone.

f) **Ensuring maritime security and defence:**

Ha Tinh will train and develop individuals to participate in the security and defence forces. Moreover, Ha Tinh Province will support the security measures and defence for the central coastal region through development of industries such as shipbuilding, construction materials, textiles and communications. This economic activity will strengthen the capacity of coastal areas in the implementation of civil obligations (Ha Tinh PC 2012: 90).

DPI has overall responsibility for submitting Socio-economic Development Plans (SEDP) to PPC, based on guidelines from the Prime Minister and MPI. In principle planning starts from the commune level to the district and then to the provincial level where DPI develops the provincial plans and send them to the PPC. The plan sets development targets - for GDP growth and growth rate of different sectors, together with proposals including measures and tasks to implement the plans. These fall into two broad areas:

- measures and tasks for achievement of specific targets of specific sectors;
- development investment - with resources available what can we/should we do - where and how can we involve the participation of the business community.

Implementation of the SEDP in Ha Tinh mainly depends on central budget allocation - both budget transfer and ODA funding. In this context, decision # 60 of PM - on principles and cost norms for use of State Budgets is important in understanding which projects and which programme will be covered by the state budget and it means that investment decisions are very constrained by what is stated in this decision. Normally 80% of construction cost budgets are covered by budget transfer. Importantly for the consideration of Ecosystem-based adaptation, Ha Tinh DPI reported that in the past the province never got any budget allocation from the central budget for non-structural measures.

Ha Tinh DPI has also expressed that they would also like to make a change in the way the state budget is utilised. They have prioritised 3 areas of activities:

- Enhancement of sea-shore
- Reservoir safety - state budget and ODA funding especially DARD supported by ADB and WB
- Sustainable forest development (plantations)

DPI recognises the most important economic assets of HT province as:

1) Economic Zones
2) Livestock production
3) Aquaculture and capture fisheries
4) Processing industries
5) Service industries - Banking and Insurance services

DPI suggests that whatever else we do in Ha Tinh we will stick with agriculture - “it is key sector that should receive special support - it is the remedy to fix the poverty problem - 80% of the population is involved in agriculture - if we fail to pay sufficient attention people will starve”.

Orientation for agricultural business development provided by DPI, suggests a focus on key products in different regions:

**Coastal areas** - promotion of shrimp production and other forms of aquaculture as well as vegetable growing in sandy areas

**Lowland areas** - paddy rice (cannot compete with the Mekong Delta for rice production)

**Hilly areas** - soil is not so fertile and weather is severe, land available is limited and fragmented - so it is difficult to improve yields - therefore focus on livestock production - expanding areas for pig and cattle production

**Mountainous areas and hilly areas** need to ensure forest protection and development.

There are also plans for more value-added products e.g. organic farming, food processing, etc. The province is calling for investment in rural development and agro-business processing, including rice processing, and other agricultural produce processing. There is already some small rice processing and export to China. Also some tea processing - tea is grown in Huong Son and Ky Anh Districts. It is high quality and exported to Europe. One company wants to invest in pomelo and ginger. There are also plans for meat processing factories - for export and for local use (but Vietnamese people don’t yet have the habit of consuming frozen meat so it will probably be mostly for export). They are also encouraging and motivating companies to invest in prawn processing for export. One company is already doing fish and squid. Greater attention will also be paid to the maritime economy, particularly restructuring capture fisheries to better exploit the deeper water resources.

However, most emphasis will be put on industry and services. Regionally, Ha Tinh will exploit its location to provide logistic and transport services to its landlocked neighbour Laos, to north-eastern Thailand and even to eastern Myanmar. In all sectors, modern technologies and efficiencies will be pursued and infrastructure developed comprehensively to support it all.

DPI emphasises that **Industrial development** can bring good revenue from the economic development perspective but they are also very aware about the negative issues associated with industrial development - recognising that there are trade-offs and
we have to pay the consequences - not only natural resources and environment suffer, but also industrial development takes land away from other uses, and we also have to find new employment for those whose land has been used for the industrial development.

Vung Anh Special Economic Zone is a springboard for economic development. It contributes 15 trillion dong annually - equivalent to 80% of the provincial budget revenue - from taxes, royalties, environmental fees, and import duties. They are very compliant to the tax regulations. In 10 years’ time, it is expected that the special economic zone will also contribute a lot to the provincial and central budget through steel, metallurgy and harbour services. It will also create 15,000 new jobs in the future. Investors from South Korea, Singapore and Taiwan, are all seeking permission to invest there. In 5 years’ time, Ky Anh town will become a more industrialized city. Many investors want to do harbour and logistics services. Vung Ang will have the biggest (coal-fired) thermal power plant. There will also be good revenue from this construction work. Additional details on development plans for individual sectors are provided in the next section.

4.2.4. Sectoral Description and Analysis

This section presents further information and analysis on the different sectors of the economy, as needed to help identify the province’s economic assets and development priorities for the vulnerability assessment.

4.2.4.1. Agriculture Forestry and Fisheries

4.2.4.1.1. Annual food crops

Rice: The total planted area of rice in the province is about 99,000ha. Yield has steadily increased from 4.75 tonnes/ha in 2011 to 5.04 tonnes/ha in 2014. The main rice growing season is the winter-spring season rice (lua dong xuan) starting from December with a total planted area of just over 55,000ha, followed by early summer-autumn season rice with a total area of over 41,000ha, starting from April. Summer-autumn rice is a very minor crop with an area of only just over 2,000ha planted in this season. This pattern of rice growing helps to avoid damage to crops caused by floods and storms in late summer (2013 figures- see Table 4.7 for more detail). Rice in Ha Tinh is mainly distributed in the lowland parts of the province along the coastal plain, with the largest areas in Cam Xuyen and Can Loc districts, followed by Thach Ha district, Ky Anh district and Duc Tho district.
Photo 0.2: Rice field in Phuc Loc Commune, Can Loc District
Table 0.4: Rice production in Ha Tinh, by district, 2015

<table>
<thead>
<tr>
<th>District</th>
<th>Total rice</th>
<th>Winter spring rice</th>
<th>Early summer rice</th>
<th>Summer rice (the 3rd rice?)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area (ha)</td>
<td>Yield (tons/ha)</td>
<td>Area (ha)</td>
<td>Yield (tons/ha)</td>
</tr>
<tr>
<td>Ha Tinh</td>
<td>2,707</td>
<td>4,828</td>
<td>1,475</td>
<td>5,008</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12,321,242</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>46,123,992</td>
</tr>
<tr>
<td>Hong Linh</td>
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<td>4,913</td>
<td>1,374</td>
<td>5,458</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11,101,075</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>42,403,141</td>
</tr>
<tr>
<td>Huong Son</td>
<td>6,786</td>
<td>4,793</td>
<td>4,583</td>
<td>5,485</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22,032,816</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>33,552,458</td>
</tr>
<tr>
<td>Duc Thọ</td>
<td>10,182</td>
<td>5,422</td>
<td>6,388</td>
<td>5,800</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>37,944,005</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4,785,427</td>
</tr>
<tr>
<td>Vu Quang</td>
<td>1,561</td>
<td>5,557</td>
<td>1,243</td>
<td>5,890</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>318,335</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>42,553,093</td>
</tr>
<tr>
<td>Nghi Xuan</td>
<td>3,962</td>
<td>4,543</td>
<td>3,090</td>
<td>4,912</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>467,435</td>
</tr>
<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,524</td>
</tr>
<tr>
<td>Can Loc</td>
<td>18,455</td>
<td>5,331</td>
<td>9,368</td>
<td>5,638</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90,878,789</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50,164,613</td>
</tr>
<tr>
<td>Huong Khe</td>
<td>5,541</td>
<td>4,587</td>
<td>3,428</td>
<td>5,437</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13,101,516</td>
</tr>
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<td></td>
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<td></td>
<td>33,012,505</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3,057</td>
</tr>
<tr>
<td>Thach Ha</td>
<td>15,382</td>
<td>5,134</td>
<td>7,863</td>
<td>5,223</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>74,307,170</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50,534,405</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8,955</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3,989</td>
</tr>
<tr>
<td>Cam Xuyen</td>
<td>18,462</td>
<td>5,504</td>
<td>9,529</td>
<td>5,503</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>89,338,430</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>55,044,611</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Ky Anh dist.</td>
<td>9,324</td>
<td>4,886</td>
<td>5,110</td>
<td>5,071</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>42,144,097</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>46,624,033</td>
</tr>
<tr>
<td>Loc Ha</td>
<td>5,161</td>
<td>4,717</td>
<td>2,961</td>
<td>5,362</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16,501,348</td>
</tr>
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<td>46,104,254</td>
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<td>55,0557</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,564</td>
</tr>
<tr>
<td>Ky Anh town</td>
<td>1,741</td>
<td>4,339</td>
<td>1,509</td>
<td>4,371</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>232</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4,129</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Ha Tinh GSO (2015)

Remark: rice yield in 2013 of whole country and north-central coastal region respectively are 5.58 and 5.37 tons/ha; spring rice are 6.44 and 5.66; early summer rice are 5.21 and 5.06; and summer rice are 4.73 and 4.25 tons/ha

Maize is the second most important annual food crop in Ha Tinh, and is grown especially in districts that have unfavourable conditions for rice production. These are typically the...
hilly and mountainous districts like Huong Son, Duc Tho and Huong Khe districts, which only have small areas for rice cultivation. Most of the maize is planted in the spring season and summer season - the wet season for rain-fed crops. Maize yield is still limited in Ha Tinh with an average yield of 3,688 tons/ha. The highest yield is about 4 tons/ha in Duc Tho and Vu Quang; and lowest yields are in Ha Tinh city and Hong Linh town, 1.2 and 2 tons/ha, respectively (Ha Tinh GSO 2015).

**Sweet potato** is a traditional crop very highly suited to the light texture soil groups in Ky Anh and Nghi Xuan. It is grown in about 5,577 ha, distributed mostly in sandy soils along the coastal area. The total production is about 34,515 tons/year (Ha Tinh GSO 2015).

**Cassava** is currently planted in about 4,089 ha in Ha Tinh Province, with a total production of 65,258 tons. It is used industrial purposes (ethanol production), animal feed production, and for human consumption. There is potential to expand production given the multiple sources of demand for the product, and the relative resilience of cassava to hot conditions and low rainfall in the dry season (Ha Tinh GSO 2015).

**Table 0.5:** Maize, sweet potato and cassava production in districts of Ha Tinh in 2015

<table>
<thead>
<tr>
<th>District</th>
<th>Maize Area (ha)</th>
<th>Maize Yield (tons/ha)</th>
<th>Sweet potato Area (ha)</th>
<th>Sweet potato Yield (tons/ha)</th>
<th>Cassava Area (ha)</th>
<th>Cassava Yield (tons/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha Tinh</td>
<td>7</td>
<td>1.714</td>
<td>50</td>
<td>4.42</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hong Linh</td>
<td>1</td>
<td>2</td>
<td>51</td>
<td>7.118</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Huong Son</td>
<td>3,542</td>
<td>3.499</td>
<td>173</td>
<td>8.138</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duc Thọ</td>
<td>1,376</td>
<td>4.233</td>
<td>91</td>
<td>5.2545.989</td>
<td>24</td>
<td>7.042</td>
</tr>
<tr>
<td>Vu Quang</td>
<td>758</td>
<td>4.437</td>
<td>43</td>
<td>4.721</td>
<td>103</td>
<td>9.0</td>
</tr>
<tr>
<td>Nghi Xuan</td>
<td>148</td>
<td>2.155</td>
<td>1,383</td>
<td>7.034</td>
<td>379</td>
<td>12.124</td>
</tr>
<tr>
<td>Huong Khe</td>
<td>1,980</td>
<td>3.970</td>
<td>313</td>
<td>5.259</td>
<td>79</td>
<td>6.835</td>
</tr>
<tr>
<td>Thach Ha</td>
<td>135</td>
<td>2.015</td>
<td>501</td>
<td>6.174</td>
<td>44</td>
<td>6.977</td>
</tr>
<tr>
<td>Cam Xuyen</td>
<td>117</td>
<td>2.436</td>
<td>592</td>
<td>6.66</td>
<td>371</td>
<td>11.243</td>
</tr>
<tr>
<td>Ky Anh dist.</td>
<td>154</td>
<td>3.065</td>
<td>923</td>
<td>5.612</td>
<td>2,211</td>
<td>20.825</td>
</tr>
<tr>
<td>Loc Ha</td>
<td>240</td>
<td>2.029</td>
<td>559</td>
<td>5.472</td>
<td>37</td>
<td>8.892</td>
</tr>
<tr>
<td>Ky Anh town</td>
<td>6</td>
<td>2.5</td>
<td>220</td>
<td>5.877</td>
<td>207</td>
<td>12.483</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>8,724</strong></td>
<td><strong>3.688</strong></td>
<td><strong>5,577</strong></td>
<td><strong>6.189</strong></td>
<td><strong>4,089</strong></td>
<td><strong>15.959</strong></td>
</tr>
</tbody>
</table>

*Source: Ha Tinh GSO (2015)*
4.2.4.1.2. Annual Industrial Crops

Sugar cane in Ha Tinh is grown mostly in Huong Khe district with about 87 ha in 2015. Other districts have insignificant sugar cane areas (Ha Tinh GSO 2015).

Peanut is one of the strong industrial crops in Ha Tinh based on the highly suitable sandy soil and climate conditions. In 201 it was grown in a total area of 15,967 ha and was planted in most districts, but with the largest areas in Ky Anh, Huong Khe and Nghi Xuan. Peanut yield in Ha Tinh is about 2.3 tons/ha (Ha Tinh GSO 2015).

Sesame production is strong with a total area of 914 ha, planted mostly in Ky Anh and Nghi Xuan districts (Ha Tinh GSO 2015).

Photo 0.3: Peanut field in Phuc Loc Commune, Can Loc District
### Table 0.6: Some Industrial crops in districts of Ha Tinh in 2015

<table>
<thead>
<tr>
<th>District</th>
<th>Sugarcane (ha)</th>
<th>Peanut (ha)</th>
<th>Sesame (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha Tinh</td>
<td>0</td>
<td>277</td>
<td>11</td>
</tr>
<tr>
<td>Hong Lnh</td>
<td>0</td>
<td>38</td>
<td>1</td>
</tr>
<tr>
<td>Huong Son</td>
<td>16</td>
<td>1,769</td>
<td>1</td>
</tr>
<tr>
<td>Duc Tho</td>
<td>0</td>
<td>1,417</td>
<td>0</td>
</tr>
<tr>
<td>Vu Quang</td>
<td>24</td>
<td>678</td>
<td>0</td>
</tr>
<tr>
<td>Nghi Xuan</td>
<td>0</td>
<td>2,017</td>
<td>266</td>
</tr>
<tr>
<td>Can Loc</td>
<td>3</td>
<td>598</td>
<td>21</td>
</tr>
<tr>
<td>Huong Khe</td>
<td>87</td>
<td>2,205</td>
<td>3</td>
</tr>
<tr>
<td>Thach Ha</td>
<td>2</td>
<td>1,443</td>
<td>42</td>
</tr>
<tr>
<td>Cam Xuyen</td>
<td>4</td>
<td>1,167</td>
<td>150</td>
</tr>
<tr>
<td>Ky Anh dist.</td>
<td>0</td>
<td>2,345</td>
<td>197</td>
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<tr>
<td>Loc Ha</td>
<td>0</td>
<td>1,405</td>
<td>164</td>
</tr>
<tr>
<td>Ky Anh town</td>
<td>0</td>
<td>608</td>
<td>58</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>136</strong></td>
<td><strong>15,967</strong></td>
<td><strong>914</strong></td>
</tr>
</tbody>
</table>

*Source: Ha Tinh GSO (2015)*

#### 4.2.4.1.3. Perennial Crops

Over 24,000 ha of Ha Tinh are planted with perennial crops. Around one-third of this is planted with rubber, the single most important perennial crop (in terms of area). In addition, 9,800ha are planted with a variety of non-citrus fruit trees, and a further 2,538ha are planted with oranges and other citrus fruits, grown mainly in the higher elevation areas of Huong Son, Huong Khe, and Vu Quang Districts. Production of the famous Phuc Trach pomelo is still not enough to meet demand. Almost 3,000ha are planted with tea, and pepper is becoming increasingly important as a perennial crop.
### Table 0.7: Some perennial crop areas in districts of Ha Tinh in 2015

<table>
<thead>
<tr>
<th>District</th>
<th>Total Perennial crops (ha)</th>
<th>Tea (ha)</th>
<th>Fruit trees (ha)</th>
<th>Orange/other citrus (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha Tinh</td>
<td>167</td>
<td>0</td>
<td>153</td>
<td>16</td>
</tr>
<tr>
<td>Hong Linh</td>
<td>110</td>
<td>10</td>
<td>92</td>
<td>11</td>
</tr>
<tr>
<td>Huong Son</td>
<td>3,692</td>
<td>678</td>
<td>2,324</td>
<td>772</td>
</tr>
<tr>
<td>Duc Tho</td>
<td>804</td>
<td>49</td>
<td>442</td>
<td>45</td>
</tr>
<tr>
<td>Vu Quang</td>
<td>3,028</td>
<td>149</td>
<td>1,754</td>
<td>950</td>
</tr>
<tr>
<td>Nghi Xuan</td>
<td>238</td>
<td>26</td>
<td>188</td>
<td>18</td>
</tr>
<tr>
<td>Can Loc</td>
<td>1,832</td>
<td>214</td>
<td>877</td>
<td>200</td>
</tr>
<tr>
<td>Huong Khe</td>
<td>10,483</td>
<td>450</td>
<td>2,854</td>
<td>958</td>
</tr>
<tr>
<td>Thach Ha</td>
<td>884</td>
<td>131</td>
<td>645</td>
<td>140</td>
</tr>
<tr>
<td>Cam Xuyen</td>
<td>1,469</td>
<td>128</td>
<td>1,271</td>
<td>143</td>
</tr>
<tr>
<td>Ky Anh dist.</td>
<td>1,955</td>
<td>617</td>
<td>664</td>
<td>105</td>
</tr>
<tr>
<td>Loc Ha</td>
<td>348</td>
<td>86</td>
<td>242</td>
<td>22</td>
</tr>
<tr>
<td>Ky Anh town</td>
<td>127</td>
<td>13</td>
<td>110</td>
<td>7</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>25,137</strong></td>
<td><strong>2,551</strong></td>
<td><strong>11,616</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Ha Tinh GSO (2015)*

#### 4.2.4.1.4. Livestock

Although livestock numbers are not particularly high, the sector accounts for a large proportion of agricultural output. Disease prevention and control are increasingly of concern, with some serious outbreaks occurring in neighbouring provinces. DARD is developing vaccination programmes and planning responses to any epidemics that might happen in the future.

Strategies to improve livestock production include:

- promoting larger more commercial and more intensive animal production units
- Continued genetic improvement “Sindhilisation” of cattle herds through AI
- Cross breeding of pigs to increase the proportion of meat to fat.
- Promoting highly nutritious pasture grasses for cattle rearing
- Promoting high value species: deer and goats
Table 0.8: Livestock production in districts of Ha Tinh in 2015

<table>
<thead>
<tr>
<th>District</th>
<th>Buffalo (head)</th>
<th>Cow (head)</th>
<th>Pig (head)</th>
<th>Poultry (1,000 head)</th>
<th>Deer (head)</th>
<th>Goat (head)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha Tinh</td>
<td>618</td>
<td>3,588</td>
<td>8,267</td>
<td>238</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hong Linh</td>
<td>886</td>
<td>1,818</td>
<td>5,166</td>
<td>155</td>
<td>17</td>
<td>333</td>
</tr>
<tr>
<td>Hung Son</td>
<td>9,397</td>
<td>27,327</td>
<td>47,930</td>
<td>581</td>
<td>36,627</td>
<td>6,975</td>
</tr>
<tr>
<td>Duc Tho</td>
<td>6,052</td>
<td>25,834</td>
<td>40,040</td>
<td>719</td>
<td>415</td>
<td>280</td>
</tr>
<tr>
<td>Vu Quang</td>
<td>3,837</td>
<td>9,518</td>
<td>25,372</td>
<td>244</td>
<td>660</td>
<td>257</td>
</tr>
<tr>
<td>Nhi Xuan</td>
<td>3,497</td>
<td>13,211</td>
<td>18,593</td>
<td>597</td>
<td>13</td>
<td>642</td>
</tr>
<tr>
<td>Can Loc</td>
<td>5,300</td>
<td>26,683</td>
<td>67,627</td>
<td>943</td>
<td>389</td>
<td>296</td>
</tr>
<tr>
<td>Hung Khe</td>
<td>17,356</td>
<td>13,406</td>
<td>54,506</td>
<td>643</td>
<td>1,758</td>
<td>374</td>
</tr>
<tr>
<td>Thach Ha</td>
<td>7,217</td>
<td>18,929</td>
<td>74,952</td>
<td>903</td>
<td>95</td>
<td>201</td>
</tr>
<tr>
<td>Cam Xuyen</td>
<td>8,744</td>
<td>21,796</td>
<td>91,737</td>
<td>1,161</td>
<td>91</td>
<td>223</td>
</tr>
<tr>
<td>Ky Anh dist.</td>
<td>11,757</td>
<td>14,482</td>
<td>22,397</td>
<td>636</td>
<td>64</td>
<td>1,200</td>
</tr>
<tr>
<td>Loc Ha</td>
<td>2,493</td>
<td>10,633</td>
<td>11,055</td>
<td>256</td>
<td>15</td>
<td>217</td>
</tr>
<tr>
<td>Ky Anh town</td>
<td>3,631</td>
<td>5,507</td>
<td>6,189</td>
<td>150</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>TOTAL</td>
<td>80,785</td>
<td>192,732</td>
<td>2,7225</td>
<td>5,573</td>
<td>40,144</td>
<td>11,007</td>
</tr>
</tbody>
</table>

Source: Ha Tinh GSO (2015)

Overall, the total area of agriculture has remained relatively stable. Since 2007 the total area of rice planted has varied a little each year, between 99-101,000 ha, but summer rice has declined consistently from 7,475ha in 2007 to only 1,732 ha in 2014, while early summer and winter-spring rice planting have both increased. The areas planted with maize and cassava have remained relatively stable, while the area of sweet potato has declined consistently from 13,921 ha in 2007 to 5,861 ha in 2014. Peanut has remained relatively stable but both sesame and sugar cane (which are only planted in relatively small areas anyway) both declined in area by 40-50% between 2007 and 2014. The amount of tea has increased four-fold in the same period. Orange and lemon tree area
has increased from 2,180 to 2,655ha, while the area planted with pomelo has remained about the same. The area planted with bananas has increased from 1,569 to 1,983ha, while the biggest rate of increase (but from a very low starting point) has been seen in mango cultivation which has grown from only 62ha in 2007 to 327ha in 2014 (a 500% increase). See Table 4.9 for more details.

PPC is also developing additional mechanisms to support farmers - for example supporting marketing for farmers’ products, supporting provision of cooling trucks, using sludge and agricultural by-products to produce organic fertilizers, etc. The VN cooperation for minerals and mining, also has an animal feed factory.

### Table 0.9: Changes in agricultural production in Ha Tinh over time

<table>
<thead>
<tr>
<th></th>
<th>Area planted (Ha)</th>
<th>Yield (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total rice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100,844</td>
<td>99,003</td>
<td>101,011</td>
</tr>
<tr>
<td>Winter-spring rice</td>
<td>54,514</td>
<td>53,569</td>
</tr>
<tr>
<td>Early summer rice</td>
<td>38,855</td>
<td>41,356</td>
</tr>
<tr>
<td>Summer rice</td>
<td>7,475</td>
<td>4,078</td>
</tr>
<tr>
<td>Other annual crops</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td>8,590</td>
<td>8,060</td>
</tr>
<tr>
<td>Sweet potato</td>
<td>13,921</td>
<td>9,427</td>
</tr>
<tr>
<td>Cassava</td>
<td>4,130</td>
<td>3,439</td>
</tr>
<tr>
<td>Beans</td>
<td>4,130</td>
<td>3,439</td>
</tr>
<tr>
<td>Vegetable</td>
<td></td>
<td>9,456</td>
</tr>
<tr>
<td>Jute</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Rushes</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>280</td>
<td>280</td>
</tr>
<tr>
<td>Peanut</td>
<td>20,450</td>
<td>19,414</td>
</tr>
<tr>
<td>Sesame</td>
<td>1,567</td>
<td>14,67</td>
</tr>
<tr>
<td></td>
<td>Area planted (Ha)</td>
<td>Yield (tons)</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Total rice</td>
<td>100,844</td>
<td>99,003</td>
</tr>
<tr>
<td>Tobacco</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perennial crops</td>
<td>16,862</td>
<td>21,133</td>
</tr>
<tr>
<td>Tea Bud</td>
<td>811</td>
<td>895</td>
</tr>
<tr>
<td>Harvested tea</td>
<td>567</td>
<td>647</td>
</tr>
<tr>
<td>Coffee</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Rubber</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Pepper</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Coconut</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Fruit crops</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Orange, Lemon</td>
<td>2,180</td>
<td>2,568</td>
</tr>
<tr>
<td>Pomelo</td>
<td>1,402</td>
<td>1,587</td>
</tr>
<tr>
<td>Pineapple</td>
<td>296</td>
<td>411</td>
</tr>
<tr>
<td>Bananas</td>
<td>1,569</td>
<td>1,951</td>
</tr>
<tr>
<td>Loongan</td>
<td>145</td>
<td>193</td>
</tr>
<tr>
<td>Litchi</td>
<td>111</td>
<td>188</td>
</tr>
<tr>
<td>Mango</td>
<td>62</td>
<td>201</td>
</tr>
<tr>
<td>Other fruit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buffalos</td>
<td>109.8</td>
<td>94.7</td>
</tr>
<tr>
<td>(1,000head)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cow</td>
<td>210.1</td>
<td>166.3</td>
</tr>
<tr>
<td>Pig</td>
<td>422.4</td>
<td>356.0</td>
</tr>
<tr>
<td>Horse</td>
<td>0.2</td>
<td>0.2</td>
</tr>
</tbody>
</table>
## 4.2.4.1.5. Forestry

As described in Chapter 3, (the Ecological profile of Ha Tinh Province), around 351,000ha or over 58% of the land area of the province) is still identified as “forestry” land (see Table 4.2 and Map 4.1). However, a land-use designation as forestry land apparently does not always mean that the land actually has forest cover. MARD data for 2012 and HT DARD information for 2015 (see Table 4.10) suggests that actual forest
cover is only around 321,000 hectares. Of this total amount of land with forest cover, about 70% is natural forest and about 30% is plantation forest, meaning that in total, natural forest covers about 35% of the province land area and plantation forest about 15%. About 40% of the remaining natural forest is contained within Vu Quang National Park and Kego Nature Reserve.

Table 0.10: Forest types in Ha Tinh

<table>
<thead>
<tr>
<th>Use type of land</th>
<th>HT Statistical Yearbook 2015</th>
<th>MARD-FIPI 2012</th>
<th>DONRE 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ha</td>
<td>%</td>
<td>ha</td>
</tr>
<tr>
<td>Total land area</td>
<td>599,031</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Agricultural land</td>
<td>152,563</td>
<td>25.47</td>
<td></td>
</tr>
<tr>
<td>Forestry</td>
<td>322,107</td>
<td>53.77</td>
<td>351,891</td>
</tr>
<tr>
<td>- Special use</td>
<td></td>
<td></td>
<td>164,014</td>
</tr>
<tr>
<td>Forest</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Protection</td>
<td></td>
<td></td>
<td>113,300</td>
</tr>
<tr>
<td>Forest</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Production</td>
<td></td>
<td></td>
<td>74,577</td>
</tr>
<tr>
<td>Forest</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Forestry Management Boards, Forestry Companies, Commune Peoples’ Committees and Households are all major forest owners in Ha Tinh (see Table 4.11)

- National Parks and Nature Reserves manage the Special Use Forest which includes most of the richest forest with very high biodiversity including remaining areas of primary forest on the East flank of the North Truong Son mountain/border Vietnam-Lao PDR.

- Protection Forest Management Boards manage most protection forest and some production forest. They are responsible for large areas of natural forest, and some plantation forest.

- Forestry Companies manage most production forest including both natural and plantation forests. Combined they are managing a natural forest area that is bigger than Ke Go nature reserve and almost as big as Vu Quang National Park.
• Forestry land allocated for households is mostly land for plantation forestry and agro-forestry practices. Very little natural forest has been transferred to households.
### Table 0.11: Forest ownership and management responsibility in Ha Tinh Province

<table>
<thead>
<tr>
<th>Forest Owner</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Special Use Forest Management Board</strong></td>
<td></td>
</tr>
<tr>
<td>Vu Quang NP</td>
<td>55,341</td>
</tr>
<tr>
<td>Ke Go Nature Reserve</td>
<td>36,552</td>
</tr>
<tr>
<td><strong>II. Protection Forest Management Board (PFMB)</strong></td>
<td></td>
</tr>
<tr>
<td>Ngan Pho river PFMB</td>
<td>25,019</td>
</tr>
<tr>
<td>Ngan Sau river PFMB</td>
<td>16,860</td>
</tr>
<tr>
<td>Hong Linh PFMB</td>
<td>6,072</td>
</tr>
<tr>
<td>Tiem river PFMB</td>
<td>12,917</td>
</tr>
<tr>
<td>South Ha Tinh PFMB</td>
<td>20,567</td>
</tr>
<tr>
<td><strong>III. Forestry Company</strong></td>
<td></td>
</tr>
<tr>
<td>Huong Son LLC</td>
<td>18,728</td>
</tr>
<tr>
<td>Chuc A LLC</td>
<td>14,381</td>
</tr>
<tr>
<td>Ha Tinh Rubber Company</td>
<td>12,864</td>
</tr>
<tr>
<td>Huong Khe Rubber Company</td>
<td>14,666</td>
</tr>
<tr>
<td><strong>IV. Other Organization</strong></td>
<td>5,540 (N: 3,989; P: 1,551)</td>
</tr>
<tr>
<td><strong>V. Commune PCs</strong></td>
<td>31,717 (N: 14,932; P: 16,785)</td>
</tr>
<tr>
<td><strong>VI. Private Households</strong></td>
<td>31,768 (N: 5,766; P: 26,002)</td>
</tr>
<tr>
<td><strong>VII. Not yet allocated</strong></td>
<td>15,511 (N)</td>
</tr>
<tr>
<td><strong>Total Forest area of Ha Tinh province</strong></td>
<td>320,381ha (N: 229,742ha; P: 90,639ha)</td>
</tr>
</tbody>
</table>

Source: HT DARD 2015

In 2014, the forest sector in Ha Tinh generated 1.16 trillion VND of which 957 billion (82.5%) came from timber harvesting, and the remainder came from forest planting and care - 110 billion VND (9.7%); NTFPs, 52 billion VND (4.4%); and services 41 billion VND (3.4%). Over 50% of this value is generated from Ky Anh and Huong Son Districts, followed by Huong Khe, Vu Quang and Cam Xuyen which account for almost another 40% of the total. Around 260,000m³ of timber was produced in 2014, of which about 93% was from plantations. Almost all of the plantation timber is used for pulp and chips, and the
figures suggest 238,000m$^3$ of wood chips and pulp were produced. However, the biggest use of wood in the province appears to be for firewood - with a total volume used equal to almost double the total volume of timber, pulp and chips combined.

**Table 0.12: Ha Tinh Forest production in 2015**

<table>
<thead>
<tr>
<th>Item</th>
<th>Volume (m$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber (natural forest)</td>
<td>22,500</td>
</tr>
<tr>
<td>Timber (plantation)</td>
<td>247,149</td>
</tr>
<tr>
<td>Chips and pulp</td>
<td>243,319</td>
</tr>
<tr>
<td>Firewood (ster)</td>
<td>912,072</td>
</tr>
<tr>
<td>Bamboo (cane)</td>
<td>2,802</td>
</tr>
<tr>
<td>Rattan (tonne)</td>
<td>965</td>
</tr>
</tbody>
</table>

*Source: HT Statistical Year Book 2015*

**Wood processing in Ha Tinh**

There are 5 types of wood processing in Ha Tinh, which are: sawmill, civil woodworking/furniture, plywood, floor plywood, and wood chips (see Table 4.13). Ha Tinh has 509 timber processing units/factories with a combined annual capacity of almost 85,000m$^3$ of wood products and almost 300,000tons of wood chips. Only 195 of these factories have have operating licenses, the remaining 314 units (62%) operate without a license. Additional small-scale wood processing units at the household level are not registered and not managed. Indeed, local authorities do not have the capacity to manage them. Wood processing factories are often located near by the forest: wood resources are bought from the free local market, where the illegally harvested timber from natural forests is also unfortunately included in the supply chain. The statistics presented in Table 4.13 suggest around half of the raw material for production of sawn timber, plywood and furniture in Ha Tinh is imported (presumably mostly from Lao PDR), but on the other hand, all of the raw material for production of wood chips is sourced within the province, from the large areas of acacia plantations. This suggests there is an economic opportunity to shift somewhat away from production of chips and more towards production of higher value timber, as the market demand for this already exists.
### Table 0.13: Wood processing in Ha Tinh

<table>
<thead>
<tr>
<th>Activity</th>
<th>No. of factories</th>
<th>Yearly capacity</th>
<th>Source of wood (%)</th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Natural forest</td>
<td>Import</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Plantation forest</td>
<td>Source: Unpublished document provided to consultant by Ha Tinh DARD, 2012</td>
</tr>
<tr>
<td>Sawmill</td>
<td>385</td>
<td>47,145m³/year</td>
<td>36.87</td>
<td>47.145m³/year</td>
</tr>
<tr>
<td>Civil woodworking and furniture</td>
<td>109</td>
<td>25,557m³/year</td>
<td>29.40</td>
<td>59.20</td>
</tr>
<tr>
<td>Plywood</td>
<td>5</td>
<td>5,076m³/year</td>
<td>29.56</td>
<td>66.29</td>
</tr>
<tr>
<td>Flooring plywood</td>
<td>5</td>
<td>6,409m³/year</td>
<td>28.04</td>
<td>48.15</td>
</tr>
<tr>
<td>Wood chips</td>
<td>5</td>
<td>298,191ton/year</td>
<td>100</td>
<td>Nghi Xuan, Huong Khe, Ky Anh</td>
</tr>
</tbody>
</table>

4.2.4.1.6. Capture Fisheries

The continental shelf of Vietnam, where coastal fisheries operate, is wide and shallow in the north and south, and narrower with a steeper slope in the central region. The coastal marine environment is divided into four regions based on their hydrological regimes, namely, the Gulf of Tonkin; central region; southeast region; and southwest region (see Map 4.2). The Gulf of Tonkin spans an area of 140,000 km² and is shared by Vietnam and China. The Gulf is relatively shallow, mostly less than 50m depth and has a relatively flat bottom with muddy to sandy substrate. Ha Tinh is located in the southern part of the Gulf of Tonkin (see Map 4.2).
The fisheries sector of Vietnam plays an important role in the social and economic development of the country, accounting for nearly 6% of GDP, 10% of total employment and 8% of export products. Its share of GDP is similar to that of the garments/textile industry, while its share of net foreign exchange earnings is much higher given that some important export sectors (e.g., garments, footwear, and furniture) depend on high import content.

Nationally, marine capture fisheries production increased steadily from 1981 to 1999, posting a nearly three-fold increase from 419,740t in 1981 to 1,212,800t in 1999. However, average catch per unit effort (CPUE) declined over the same period because the annual increases in production were obtained through greater than proportional increases in total horsepower. Over the two decades, total horsepower increased more than five-and-a-half fold from 453,871 Horse-power (HP) in 1981 to 2,518,493 HP in 1999. CPUE declines were observed in specific fishing grounds (Vinh et al. 2001). In the Gulf of Tonkin (between 1985 - 97); the decline ass from 1.06 to 0.66 t/HP year. Between 2000 and 2010, the sector continued to grow at an average annual rate of 13.6% in volume terms and 10.4% in value terms. Capture fisheries production in 2010 was estimated at 5.2 million tons. While two-thirds of production is consumed domestically, export value still reached $5 billion in 2010 (up from $1 billion in 1999). The increase in HP of the fishing fleet continued to grow twice as fast as the increase in production during this period.

There are evident signs that the past growth of the country’s marine capture fisheries is non-sustainable. Volume growth has nearly halted in recent years, except with respect
to lesser value fish species. Productivity is declining and the share of ‘trash fish’ and small-sized fish in the landed catch is increasing. Throughout Vietnam, overfishing is especially evident in the near-shore areas, which are the primary source of livelihood for most of the poor or near poor coastal communities. Most of the fishing gears that are being used violate current regulations related to mesh size leading to a high proportion of trash fish in landings.

Small scale fisheries are defined as those that use non-powered boats or motorized boats with an engine of less than 90 HP. Over 100,000 small fishing boats are operating in near shore areas of Vietnam (The legal definition of near-shore is up to 6 nautical miles, but in practical terms small-scale fishing is probably limited more by water depth than distance from the shore - operating mostly in depths of less than 50m). The vast majority are long-tail or stationary 1-cylinder diesel engines of less than 20HP mainly of Chinese and Japanese make, which operate directly from the beach without using harbour facilities. The typical small scale fishing operation is labour-intensive and confined to near-shore waters. Common small scale fishing gear include beach seines, gillnets, lift nets, push nets, trawls, cast nets, traps, hooks, lines, set nets and trammel nets. At present, the small scale fishery in Vietnam accounts for more than 95% of total fishing boats, 90% of the fisheries labour force and nearly two thirds of production and value.

The near-shore fisheries are experiencing a classic ‘tragedy of the commons’ phenomenon, as too many fishers are now competing over an insufficient and dwindling “open access” resource, while also contributing to marine habitat destruction. The short-term incentives for individual fishers are incompatible with the longer term interests of the coastal communities and the needs for sustainable resource management. The combination of overcapacity and destructive fishing practices is taking a heavy toll on biodiversity, the quality of resources, and the viability of livelihoods of many coastal communities. At the same time, Climate Change is creating additional threats as changes in water temperature, turbidity, salinity and acidity as well as sea-level rise will affect both the critical coastal habitats that underpin fisheries productivity, and will also impact some of the key fisheries specie directly as well.

Since 1998 the Vietnamese government has a policy to give preferential loans to fishermen to upgrade their vessels and install modern equipment and efficient fishing gear so they can fish further offshore. The government has also invested in harbour infrastructure to support offshore fisheries landings. Private businesses (including foreign-invested businesses) exploiting offshore fisheries are given tax relief during the first 3 years of business operations.

Effective Co-management systems could help enforce regulations and improve sustainability of near-shore fisheries. Decree No. 33/2010/ND-CP issued by the government in 2010 explicitly assigns open access coastal areas to local authorities and fishing communities to implement a partnership of co-management models. To translate this into action, local fishing communities, as well as local authorities, would need support to strengthen their capacity to carry out their new responsibilities.
The capture fishery in Ha Tinh exploits over 100 species, including fish, shellfish, shrimp, and squid, using a diverse array of equipment and technologies, including gillnets, seines, trawls. The structure of the capture fishery, shown in Table 4.14, is based on engine size, reflecting the distance from shore of the waters exploited.

**Table 0.14: Structure of Ha Tinh’s Capture Fishery**

<table>
<thead>
<tr>
<th>Engine size (horsepower)</th>
<th>No. of boats</th>
<th>Fishing Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;90 HP</td>
<td>31</td>
<td>Offshore to Distant waters</td>
</tr>
<tr>
<td>50-90 HP</td>
<td>56</td>
<td>Off-shore</td>
</tr>
<tr>
<td>20-50 HP</td>
<td>692</td>
<td>Off-shore</td>
</tr>
<tr>
<td>&lt;20 HP</td>
<td>3,010</td>
<td>Near shore</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>3,789</strong></td>
<td></td>
</tr>
</tbody>
</table>


Currently there are over 3,000 small often woven bamboo-hulled boats (<20 HP), operated from beaches by groups of 6-10 men and fishing on-shore (within 6 nautical miles of shore). Routine catches are landed and sold on the beach near the largely poor villages where the fishermen live. There are two fish processing factories in Ha Tinh for export, but most of the fisheries produce is sold on the domestic market.

While no specific in-depth studies have been carried out in Ha Tinh Province, there is no reason to assume that the situation here is any different from the pattern across the rest of the country. It is safe to say that near-shore coastal fisheries in Ha Tinh are already under severe stress. Indeed, discussions with DARD Fisheries Division confirmed that near shore-resources are already exhausted - suggesting that what is remaining now is really just for subsistence use.

The future of capture fisheries in Ha Tinh is seen restructuring the fishery from many small-scale inshore boats, to a smaller fleet of larger off-shore boats exploiting the (perceived to be) still abundant resources of deeper waters and protecting national sovereignty towards sea areas and islands. For these reasons, and in line with national policy in the fisheries sector, the Ha Tinh provincial government is encouraging the redeployment of this labour to larger boats for off-shore fishing, into aquaculture, processing, and even out of the sector altogether, into horticulture and animal husbandry. HT province Decision # 90 HT is to reduce the number of small scale fishing boats and provide incentives for bigger vessels through provision of low interest loans from the social policy
bank. Loans from commercial banks are also necessary to invest in the biggest boats. To invest in boats of 90-150HP, fishers can get 200 million VND of soft loans; for 250 to <400 HP they can get 300 million support; and for 400+ HP they get 600 million VND soft loan support. DARD Fisheries Division also expressed hope that in about 10 years-time near-shore resources will recover, after the number of near-shore fishers has been significantly reduced.

The World Bank Project “Coastal Resources for Sustainable Development (CRSD) Project - P118979 (2012-2018)” development objective is to improve the sustainable management of coastal fisheries in Project Provinces with four components:

A. Institutional capacity strengthening for sustainable fisheries management (Cost $5.30 M)
B. Good practices for sustainable aquaculture (Cost $48.10 M)
C. Sustainable management of near-shore capture fisheries (Cost $52.20 M)
D. Project management, Monitoring and Evaluation (M&E) (Cost $12.30 M)

This project is assisting with coastal spatial planning in Ha Tinh. Cam Xuyen is the pilot district, after which activities will be replicated in other coastal districts. In addition, there is a GEF project - $5 million for 8 provinces that is supporting a fisheries resource conservation site on the Ha Tinh coast. These two projects may help to address some of the issues plaguing near-shore fisheries in Ha Tinh.

In December 2015 and March 2016, DARD Fisheries Division in Ha Tinh also expressed concern about the impact of pollution for example from the Formosa development and sea port at Vung Ang - including incoming and outgoing vessels, oil leakages, and other forms of pollution are damaging near shore resources. A massive fish die-off that severely impacted fisheries in 4 provinces that some say was caused by a massive release of carbolic acid an industrial cleaning agent) used to clean pipes in Formosa, occurred in April 2016, showing that their concerns were well founded.

4.2.4.1.7. Aquaculture

The shrimp industry in Vietnam has experienced many periods of ups and downs. Before 2013, most shrimp ponds in Ha Tinh cultivated giant tiger prawn; however they faced many difficulties including issues of disease, poor yield and market access. In 2012 Ha Tinh PPC passed a decision to support shrimp aquaculture on sandy areas (mainly using white shrimp). Ha Tinh DARD (2015) recorded that some 180ha of sandy land were subsequently converted to shrimp ponds and were yielding about 20tons/ha/rotation.

Our informant has been doing shrimp farming himself on sandy soil for 2-3 years, with about 5 hectares of ponds, 20km from city centre. He produced good size shrimps - 70-80 shrimps/kg and reported that there is no need to worry about market.

Furthermore, PPC aquaculture development policy is to support producers to improve production from extensive to intensive production by providing 50 million VND subsidy per person. The province is also preparing for industrialized models. There are two processing factories - they buy at lower prices and export to China - but they are calling
for more investors. One of the 5 components of the World Bank “Coastal resources for Sustainable Development” $8 million project for Ha Tinh will support diversification of aquaculture and application of Viet GAP and Biosafety standards as well as some infrastructure development.

Overall there are now about 6,000ha used for aquaculture production in Ha Tinh with a total of about 6,000 tons production of which 1,600tons is coming from production on only 180ha on sand.

Shrimp production on sandy areas requires a salinity level of about 23 ppt, and the sea water is around 33ppt, so the salinity has to be diluted somewhat by mixing with freshwater. Freshwater supply for aquaculture production on sandy areas is challenging however - it is competing with other users such as agriculture, as well as domestic use of coastal fishing communities. Shrimp farmers therefore have to rely on groundwater.

Waste water discharge from shrimp production is an issue - if there is no investment in waste water treatment, this will be a growing problem in the future. Most shrimp ponds on sandy areas simply release waste water into the surrounding environment (note the “tail” from the ponds to the seashore in Photo 4.4).

**Photo 0.4: Aquaculture in sandy areas of Xuan Pho Commune, Nghi Xuan District**

Other issues in prawn aquaculture include:

- Diseases - EMS - acute
- Climate change temperature increase increases growth rate - but when temperature gets very hot (37 degrees+) it is actually bad for the prawns, which stop feeding
• Typhoons and floods can damage and sweep away facilities - e.g. 2010 severe floods had a big impact

It is assumed by DARD Ha Tinh, that in coming years, demand within ASEAN will increase, spurred by the AEC, and shrimp price will increase. Consequently, it is planned that large tracts of sandy areas will be converted to shrimp ponds for white shrimp cultivation.

Table 0.15: Aquaculture in Ha Tinh

<table>
<thead>
<tr>
<th>Classified aquaculture are</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011</td>
</tr>
<tr>
<td><strong>By types of products</strong></td>
<td></td>
</tr>
<tr>
<td>Shrimp</td>
<td>1,656</td>
</tr>
<tr>
<td>Fish</td>
<td>3,906</td>
</tr>
<tr>
<td>other aquatic</td>
<td>399</td>
</tr>
<tr>
<td><strong>By farming methods</strong></td>
<td></td>
</tr>
<tr>
<td>Intensive aquaculture</td>
<td>373</td>
</tr>
<tr>
<td>semi intensive aquaculture</td>
<td>3,638</td>
</tr>
<tr>
<td>extensive and improved</td>
<td>1,950</td>
</tr>
<tr>
<td>extensive aquaculture</td>
<td>1,950</td>
</tr>
<tr>
<td><strong>By types of water</strong></td>
<td></td>
</tr>
<tr>
<td>freshwater</td>
<td>3,841</td>
</tr>
<tr>
<td>brackish water</td>
<td>1,748</td>
</tr>
<tr>
<td>salty water</td>
<td>372</td>
</tr>
</tbody>
</table>

*Source: Ha Tinh GSO (2015)*
Table 0.16: Aquaculture production in districts of Ha Tinh (ha)

<table>
<thead>
<tr>
<th>District</th>
<th>Area (ha)</th>
<th>Gross output per ha (mil.VND)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ha Tinh</td>
<td>355</td>
<td>166.03</td>
</tr>
<tr>
<td>Hong Linh</td>
<td>69</td>
<td>118.52</td>
</tr>
<tr>
<td>Huong Son</td>
<td>402</td>
<td>39.64</td>
</tr>
<tr>
<td>Duc Tho</td>
<td>568</td>
<td>98.90</td>
</tr>
<tr>
<td>Vu Quang</td>
<td>139</td>
<td>28.51</td>
</tr>
<tr>
<td>Nghi Xuan</td>
<td>761</td>
<td>233.24</td>
</tr>
<tr>
<td>Can Loc</td>
<td>607</td>
<td>55.58</td>
</tr>
<tr>
<td>Huong Khe</td>
<td>289</td>
<td>48.47</td>
</tr>
<tr>
<td>Thach Ha</td>
<td>1,186</td>
<td>214.49</td>
</tr>
<tr>
<td>Cam Xuyen</td>
<td>694</td>
<td>144.40</td>
</tr>
<tr>
<td>Ky Anh dist.</td>
<td>464</td>
<td>112.65</td>
</tr>
<tr>
<td>Loc Ha</td>
<td>736</td>
<td>147.67</td>
</tr>
<tr>
<td>Ky Anh town</td>
<td>456</td>
<td>112.65</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>6,726</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Ha Tinh GSO (2015)

Future development of the Agriculture Cluster (including agro-processing)

In Ha Tinh, agriculture, livestock, fisheries and forestry, still provides a significant share of provincial GDP and provides a very significant source of employment. This will continue to be a pillar for prosperity in the next 10 years. Ha Tinh will make initiatives such as product diversification, improving productivity, food processing and enhancing the participation of the private sector to enhance the value of this sector. In addition to increasing economic
value for farmers, these initiatives will also help to improve the resilience of the agricultural sector.

4.2.4.2. Industry

Throughout Vietnam, and much of E and SE Asia besides, special economic zones are highly favoured by governments as means of stimulating economic development. Ha Tinh currently has two special economic zones with preferential investment and tax treatments - Vung Ang, on the coast, where Formosa steel works is located, together with a coal fired power station, a port for coal import and a container port; and the Cau Treo Border Gate Economic Zone on the main route to Lao PDR. In HT a single Provincial Economic Zone Management Board (merged from 2 previous boards) oversees both of the SEZs.

“Clustering” of activities is also a preferred strategy. By 2020 it is planned that there will be 25 industrial clusters. Also 29 craft villages of which 4 will recognised/certified - engaged in wood processing, furniture making, and steel moulding. Overall industrial value in 2010 was 13 trillion dong by 2020, this is expected to reach 230 trillion.

4.2.4.2.1. Iron and Steel

Iron ore reserves of around 550 million tons in the province provide the basis for a strong mining sector. It is expected that activities in this cluster (beginning with the Thach Khe iron mine) will not only make a great contribution to provincial GDP, but also create more than 7,000 jobs by 2020. Steel production will play a very important role in Ha Tinh development. Not only through the large steel mills themselves, but also through other associated raw material suppliers (coke) and future manufacturing plants that will use the steel for various value-added products for both the domestic market and the surrounding region. Formosa produces 21 million tons of steel. However, while one large iron ore mine is fully operational, in a second large mine site, 11 million tons of cover soil were excavated and then work stopped because of a sharp decline in the iron ore price, and lack of financing. In fact, the GDP share of the mining industry in Ha Tinh in 2014 was only 1.09%, down from 2.36% in 2010. Smaller iron mines are distributed in mountains areas of other districts.

4.2.4.2.2. Titanium

Three licenses have been provided by MONRE for Heavy Sands surface (open cast) Titanium mining in two districts of the province. Titanium ore in Ha Tinh used to be the biggest in Vietnam in the early 1990s. Now it has been almost exhausted, and there is a ban on export of raw material (it should be processed to add value). Exhausted titanium mining sites are now being converted to vegetable growing areas for pumpkin and for shrimp production, and maybe also be used for a solar power development area, (but the solar farm requires
500 hectares so there might not be enough land in the former titanium mining site) instead of just planting with acacia.

4.2.4.2.3. Quarrying

Limestone and other rocks are also quarried for construction materials.

4.2.4.2.4. Textile and Garment Cluster

Ha Tinh has the opportunity to take advantage of qualified workforce and investment in infrastructure, including ports and power, and water supply, to build industry clusters for textiles and garments. Ha Tinh can take advantage of Vietnam’s strong position general on the international market of this sector.

4.2.4.3. Construction Cluster

The ongoing development of the Vung Ang zone, including the construction of new coal-fired power plants, together with the rapid expansion of urban infrastructure in Ha Tinh City, construction at the Cau Treo special economic zone, and the planned construction of new roads and railways, will ensure that construction will still be a major sector of the economy in the coming years. Boat building could also be expanded in the future.

4.2.4.4. Services

4.2.4.4.1. Commercial Sector, Trade, and Transport and Logistics Cluster

Besides its role as auxiliary to the main pillars mentioned above, this sector helps the efficient transport of raw materials and finished products. Logistics will also contribute to forming a key phase for the development of Ha Tinh province. By building roads Laos and North-eastern Thailand can be connected to the sea in Vietnam, and Ha Tinh will have the opportunity of building more commercial activities around the port area of the province and the Cau Treo border gate.

Cau Treo economic zone near the Lao border has a total area of 56,000 hectares (but only 12,000 will be developed as the rest is mountainous). It will be the location for an industry cluster and a trading facility. Some of the supporting infrastructure - roads and electricity facilities has already been constructed, but nobody has invested yet. Provincial Decree #64 allocated some of the land in this area to people as forest land.

4.2.4.4.2. Telecommunications

Ha Tinh where many young qualified people are based requires reliable telecommunications infrastructure - this is one solid area for development industry business service contracts. This sector creates new jobs, contributes to GDP. Not just to create jobs, facilitate the development of high tech and information-based industry in the medium to longer term.

4.2.4.4.3. Education
In education the focus is on upgrading secondary education, vocational training and promotion of higher education to develop a talented workforce for the future of Ha Tinh.

4.2.5. **Key Assets supporting economic sectors**

4.2.5.1. Transport

Ha Tinh has a dense network of transport including roads, railways and waterways. The total length of the inland roads is about 16,600km. The corresponding length of the internal waterways and railways is about 200km and 150km, respectively. Ha Tinh has several seaports, of which the Vung Ang deep water sea port is the most important one which contributes to 80% of the province’s GDP in 2014 - 2015, according to a DPI report. Since the province has no airport, the transport development is focused on roadways, railways and waterways. According to the present planning of the provincial transportation sector, by 2020 the total annual shipping will be 32.9-35 million tons of goods and 22.8 to 24 million passengers.

4.2.5.1.1. Roadways

Ha Tinh has 5 national routes with 383km total length crossing the province, comprising national road No. 1A, the Ho Chi Minh road, and the railway; as well as national road No. 8 connecting Hong Linh Town with Laos and through Laos to Thailand at the Cau Treo border gate, and national road No. 12A connecting Vung Ang economic zone with Laos and subsequently northeast Thailand through the Chalo border gate, as well as national Road # 15. National road No. 1A, which runs through the province from Ben Thuy bridge through Nghi Xuan district and Hong Linh town and on through the other districts of Can Loc, Cam Xuyen, Thach Ha, Ha Tinh and Ky Anh with a total length of 126 km. Road No. 12A is the shortest route that links Ha Tinh and Quang Binh to the Vietnam - Lao borderline. Ha Tinh can be considered as a big gateway of the East-West Economic Corridor.

In addition, according to information provided to the consultants in meetings with Ha Tinh Transport Department in December 2015, Ha Tinh has 28 provincial level roads with total length of about 390 km; 46 inter-district roads with a total length of 1,646km and an inter-commune road system that is accessible by car with a total length of 3,623km, according to 2014 statistics. If village roads and farm roads are included, the total length of roads in the province is 16,000km. Ha Tinh is one of leading provinces in the country, in terms of developing rural roads and often receives government awards. Most rural roads are concrete. Government and local people contribute together. Government supports cement and design, while labour is provided by the community. 1,000km of new/upgraded rural roads are developed each year in Ha Tinh. Rural roads are of a good standard, not only in the lowlands but also in hilly areas. Building new rural roads is part of the new rural development programme. For roads to farm fields for agriculture activities - especially for access of

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2 Transportation planning of Ha Tinh Province toward 2020.
agricultural machinery to the fields, the government will also support cement, but development is still limited compared with rural road development overall.

During floods, a part of the No. 1A road from Nghi Xuan district to Hong Linh town is often inundated. Many parts of the No. 8 road are dangerous during the rainy season due to the impact of flashflood hazard events. The HCM road and highway #15 provide a safe refuge area during floods as the roads are at much higher elevation than the surrounding areas. Highway #8 still has some problems with landslides in some high mountainous areas with steep slopes. There are also two places in highway #15 with some landslides, but not really a big problem. Ky Anh District road also has a little bit of a problem. In addition, some of the main roads in the province including the road No. 1A and Ho Chi Minh road are also badly damaged by overweight trucks requiring significant spending on repairs and maintenance every year.

A planned new coastal road will connect all four river mouths along the coast and will connect to neighbouring provinces to the north and south. A plan has also been approved for a new highway parallel to highway #1. National highway #8 to Laos will be upgraded. A second border crossing is being planned in Huong Khe district. Ky Anh District will also have an Asean highway to Quang Binh and also to the border with Laos.

4.2.5.1.2. Waterways

The main navigation route in the province is from Ngan Sau to Cua Hoi via the La and Lam rivers with a transport length of about 60km. However, big ships cannot travel far inland during the dry season (November to early May) due to the shallow water depth. The inland waterway in this season is largely dependent on the tidal regime. Cua Hoi and Cua Sof, which are the two largest river mouths, are often closed due to the sedimentation that creates difficulties for ships.

Ha Tinh is endowed with the Vung Ang port, which will be able to receive 50,000 tonnage vessels (when the second phase of development is completed) and Xuan Hai port (near the Cua Hoi river mouth) for ships of 3,000tons. The Government of Vietnam has proposed a master plan for building up the Vung Ang seaport system in order to serve steel making, ship building and repairing, petrochemical industries and especially turning the port into the main location to help Lao PDR to import and export of goods and open its trade to the world.

The wharf No. 1 in Vung Ang deep seaport has a design capacity capable of receiving 460,000 tons/year of goods. It now is able to receive vessels of 30,000 tons and some special vessels of 45,000 tons. The second phase of the seaport is now in progress; it will increase the capacity and the comprehensive conditions of the port for receiving vessels of up to 50,000tons capacity.

4.2.5.1.3. Railways
The North - South national railroad passes through 2 districts, namely Huong Khe and Duc Tho with two stations: Yen Trung and Huong Pho. Another railroad named Vung Ang - Thakhaek is expected to be built that connects the Lao capital of Vientiane with Vung Ang seaport. The total length of this railway will be 550 km, of which the section in Vietnam is reported to be about 119km long. Currently, a feasibility study for this railway is being conducted, which will take about two years to complete, scheduled from December 2015 to December 2017. The study is funded with a US$3 million grant from Korea International Cooperation Agency (KOICA), with the aim of preparing a master plan and providing capacity building to the railway sectors of the two countries.

4.2.5.1.4. Air transport

Ha Tinh has no airport. The closest airport is in Vinh City (Nghe An Province), which is about 50km and 100km away from Ha Tinh and Vung Ang Economic Park, respectively. Another nearby airport is in Dong Hoi, Quang Binh Province, which is about 150km from Ha Tinh City. However, the province is also planning new airport in the sandy area of the coastline in the former titanium mining area (in Cam Duong and Cam Hoa communes, Cam Xuyen district).

4.2.5.2. Power Supply

4.2.5.2.1. Coal-fired Thermal Power

The province has 110 kV, 220 kV, and 500 kV power lines. A cluster of thermal (coal-fired) power plants with a combined capacity of 4,800 MW has been planned in the Vung Ang Economic Zone. The 1,200MW Vung Ang 1 Thermal Power Plant, financed by the Vietnam Oil and Gas Group, came into operation in September 2015, while the Vung Ang 2 Thermal Power Plant is now under construction and Vung Ang 3 is planned. All of this is in line with the national power sector plan #7.

4.2.5.2.2. Hydropower

In addition, there are 3 small scale hydropower plants already in operation, and one under construction:

- Huong Son (33MW)
- Hoho (14MW)
- Kego (3MW)
- The Ngan Truoi-Cam Trang Reservoir in Vu Quang will also produce 10MW power although the project is mainly for irrigation (see more details below in water supply section)

4.2.5.2.3. Other Renewable energy and energy conservation

A South Korean company has asked for permission to do a scoping and feasibility study for a 300MW solar PV farm. There has been no planning for wind power. For biogas and biomass energy - some households and some pig farms use biogas, but it is very small scale. Some pig
farms have received EU project support to develop biogas, and many others work with the CP company in a co-investment scheme.

The Centre for Energy Efficiency and Conservation is implementing a national programme - which started in 2013. They provide training for the business community and households and energy managers at businesses and they also implement “Earth Hour” each year, and have competitions for youth. They support LED lighting in rural areas. They also develop and regularly update a list of the big energy consumers in the province and report to MOIT so that MOIT can proceed with organising energy audits (done from national level).

4.2.5.3. Water Supply

Water resources management in Ha Tinh is problematic due to climate extremes and climate change. Ha Tinh suffered serious floods in 2002, 2007, 2013, as well as 2010, when following a prolonged period of rain, the whole region flooded. The mountainous Huong Son, Huong Khe and Vu Quang Districts appear to be most affected by flooding and it is unclear to what extent management of the watershed, is contributing to the problem.

According to information provided by Ha Tinh DARD to the consultants in December 2015, Ha Tinh has 347 reservoirs 57 weirs and 381 pumping stations with a total 785 million cubic metres capacity providing irrigation for 50,000ha of farmland and water for aquaculture, as well as for industrial and domestic uses. Vung Ang economic zone receives about 162 million cubic metres of water each year, and iron ore processing requires about 345 million cubic metres. Ke Go reservoir with a reservoir catchment of 223sq km capacity of 345 million cubic meters, provides the water supply for Ha Tinh City.

Reservoirs need to be operated under reservoir safety regulations. In addition, where there are multiple reservoirs in the same basin national level inter-reservoir operation procedures will be introduced. According to the plan to 2020, and vision to 2030, the province is striving to ensure adequate water supply for the province’s development needs, even in long-lasting drought periods that can be expect to be more intense with climate change (they are basing their planning on IMHEN/MONRE 2009 climate change scenarios).

According to information provided by DARD Ha Tinh, and by the management Committee of Vu Quang National Park, as well as through site inspection and review of remote sensing images, In Vu Quang they are now building the Ngan Truoi-Cam Trang irrigation scheme where the main reservoir capacity will be 778 million cubic metres (i.e. this one reservoir will contain as much water as the total of the 347 already existing reservoirs in the province). It will supply irrigation water for an additional 32,000ha, and also water for aquaculture and industrial use (see Photo 4.5).
Ha Tinh has 318.5 km of dykes, including 19.2km tier 2 river dykes. Ha Tinh PPC has approved a plan for an enhanced dyke system and are preparing dyke management planning. A World Bank Project will finance two big sluices as part of this plan.

**Photo 0.5: Ngan Truoi River Valley in the Vu Quang National Park will be flooded by construction of a new irrigation dam**

In Ha Tinh there is very limited use of ground water for industry. Baseline data in 1980s shows groundwater is generally rather limited. Ground water from wells is however used for mixing with sea water to dilute the salinity for prawn farms on sandy areas. The underground water is also likely to be high pH and high iron content - treatment to remove iron would be very costly. There are regulations on groundwater extraction to prevent subsidence. While it is thought that the total volume of groundwater extraction is not so significant, no proper studies have been conducted.

At the same time, there is considerable saline intrusion up the rivers which is exacerbated by the reduced flows in the river due to water extraction for irrigation, meaning the river has less ability to flush the saline water out. Several anecdotal comments from local people suggest they have witnessed salinity intrusion for 30 it has become much more severe in the last 10 years. Reportedly composition of the fish species caught is also becoming more dominated by saline species.

Two barrages have already been constructed to prevent this intrusion - one over 10km upstream, the Do Diem barrage on the Nghen river near Ha Tinh city; and another 50km, Ky Ha barrage on the Quyen River near the Vung Ang Economic Zone. Photo 4.6 shows the Do Diem barrage and freshwater backing up on the upstream side. On the downstream side, the lack of freshwater is damaging the mangroves. The mangroves were established in the 1980s under an Oxfam sponsored project, to promote livelihoods and support the fisheries. The trees were well-established, but growth has now checked, and die-back is spreading. It
is unclear how water flow through the barrage is being managed and what is happening to
the dip and fixed bag-net fishery in the estuary.

**Photo 0.6: Saline intrusion barrage, Do Diem, on the Nghen River, near Ha Tinh City**

![Saline intrusion barrage, Do Diem, on the Nghen River, near Ha Tinh City](image)

Photo 4.7 shows an area near the Nghèn River, Phuc Loc commune, Can Loc district. In the past, this area was in the brackish water zone, now since the construction of the Do Diem barrier it has become a freshwater aquaculture area.

A more holistic approach to water resources management, based on the principle of maintaining "environmental flows", decreasing demand and decreasing loss through the system could be explored.

**Photo 0.7: Freshwater aquaculture ponds upstream of Do Diem barrier**

![Freshwater aquaculture ponds upstream of Do Diem barrier](image)
4.3. Conclusions

From a low starting point as part of one of the poorer regions of Vietnam, Ha Tinh has developed economically very rapidly in the last decade. In the last 5 years much of this growth has been driven by the construction sector and FDI. Much of the recent construction to date has been related directly or indirectly to the development of the Vung Ang industrial zone and deep sea port, which provides the model for a future industry-led economy of Ha Tinh.

Nevertheless, in terms of its contribution to GDP, the proportion of land area used and employment provided (especially for poorer people), as well as its dependence on natural resources and higher vulnerability to climate factors the “agriculture, forestry and fisheries” sector (AFF) still remains the most important one for the identification and implementation of Ecosystem-based adaptation measures.

4.4. References

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