Preface

With the development of global logistic industry and advancement of information technology, the distance between countries and places has become much shorter and closer; the interactions between entities have become much frequent and in real time. Economy and trade has become highly liberalized and more strategic. Likewise, many enterprises have been operating at a global level with regional or local integration. In the past, the main goal of agriculture industry was to be self-sufficient and domestic focused that's why many policies were created to protect local agricultural production. Since the WTO (World Trade Organization) negotiation in Uruguay took effect, the ban of agricultural product imports was lifted. In other words, domestic agriculture products were no longer protected and imports are allowed to compete with domestic products.

The fast movement of globalization and liberalization of economy and trade, which involved significant de-regulations, has affected many industries. Agriculture industry in Taiwan cannot avoid the intense pressure, and transformation becomes inevitable; it is no longer just a self-sufficient line of business, it needs to integrate with global economy and seek for opportunities to survive and compete.

With the trend to consolidate the highly liberalized regional economy and trade, there were approximately 540 FTA/RTA (Free Trade Agreements/Regional Trade Agreements) signed by end of 2012 worldwide and 350 of them have been effectively executed; US has been driving TPP (Trans-Pacific Partnership) negotiation, ASEAN (Association of Southeast Asian Nations) started to promote RCEP (Regional Comprehensive Economic
Partnership) in 2013; Korea and EU, Korea and US singed FTA which has been executed in the past two years as well; Japan is also seeking for active TPP negotiation. Taiwan is in full speed to escalate Taiwan’s economy and trade at the strategic and global level. Government drives trade agreements (FTA/ECA) with selected partners, and strives to participate in TPP. Therefore, agricultural sector must evaluate the necessary internal adjustments to fully benefit from the signed agreements. Internal adjustments are based on the overall impact to the industry, which includes change of policies, structures to promote competitiveness of farmers, while at the same time, also protecting them. Policies adjustment has to be aligned with agreements and should put in place the farmers, industry, and Taiwan first in order to create future growth.

**The change and the trend of agricultural trades in Taiwan**

In 2002, Taiwan became a member of the WTO (World Trade Organization), leveraging tariff reduction and market liberalization, the overall international trade has grown substantially between 2001 and 2011. Table 1 below shows the value of exports and imports of Taiwan in 2001 and 2011, the export value of agricultural products trade was 4.3% of the total trade volume. And the deficit between import and export of trade for agriculture was $3,832 million dollars. Ten years after joining the WTO, Taiwan’s total international trade has grown from $230,103 million dollars in 2001 to $572,431 million dollars in 2011, representing a 150% growth increase. Agricultural products trade has grown from $9,894 million dollars to $19,510 million dollars at the same periods, representing a 97% growth increase.

**Table 1. Exports and imports of Taiwan**

<table>
<thead>
<tr>
<th>Items</th>
<th>2001</th>
<th>2011</th>
<th>Balance of Trade</th>
<th>2001</th>
<th>2011</th>
<th>Balance of Trade</th>
</tr>
</thead>
<tbody>
<tr>
<td>All (A)</td>
<td>230,103</td>
<td>122,866</td>
<td>107,237</td>
<td>15,629</td>
<td>572,431</td>
<td>291,878</td>
</tr>
<tr>
<td>Agricultural Products (B)</td>
<td>9,894</td>
<td>3,031</td>
<td>6,863</td>
<td>-3,832</td>
<td>19,510</td>
<td>4,668</td>
</tr>
<tr>
<td>Shares (B/A)%</td>
<td>4.3</td>
<td>2.47</td>
<td>6.4</td>
<td>3.4</td>
<td>1.6</td>
<td>5.29</td>
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</table>

Source: Compiled from 2011 Agricultural Trade Statistics of the ROC, COA (Council of Agriculture)

The pace of agricultural products trade has not grown to the level of total international trade. The balance of import and export trades on agricultural trade has negatively increased from $3,832 million to $10,174 million between 2001 and 2011, a much greater deficit.

A closer examination of the agriculture trade content can help to see the trend in trades. In general, agricultural products in Taiwan can be divided into the following categories: crop; livestock; fishery and forest products. Figure 1 below shows the composition of agricultural products export values between 2001 and 2011. Grains (raw and processed), flower, fruits and tea were the major export items for crop products. The key item for livestock export was feather. Fish was the key export, both raw and processed products. Wood was the key export item for the forest category, both raw and processed.

The categorized change between 2001 and 2011 of imports was minor, however several imported products have changed significantly, such as: grains (raw and processed), oilseeds and flour; livestock, poultry, meats, offal and dairy products; fishes, mollusks, both raw and processed products.

![Figure 1: The Composition of Agricultural Products Export Values between 2001 and 2011](image-url)
The markets for agriculture products in 2001 mainly came from the Asian Pacific area, the top 5 markets were: Japan 33.6%; Hong Kong 24.5%; USA 12.4%; Vietnam 3.7% and South Korea 3.4%. Comparing to 2011, the changes were obvious, the top 5 markets: Japan 21.9%; China 14.4%; Hong Kong 10.1%; USA 9.7 and Vietnam 8.0%. As for imports, the top 5 markets of Taiwan imported products from in 2001 were the following: USA 35.2%; Australia 8.0%; Japan 6.3%; Thailand 4.8% and Malaysia 4.0%. 2011, the top five imports were from: USA 26.9%; Brazil 7.6%; Australia 6.4%; Thailand 6.0%; and Japan 5.6%.

These statistics shows that, over the past 10 years, the market concentration ratio \( CR_5 \) for both import and export have decreased; import market concentration ratio dropped to 52.5% in 2011 from 58.3% in 2001; and export market concentration ratio dropped from 77.6% to 42.2% at the same time period. The first and foremost enabler of the decrease was attributed to the strategic planning for market diversification, which involved in-depth development of existing markets, and also continuous effort to develop new ones. Taiwan’s joining of WTO has proven to be a positive action which not only opened new markets, but also expanded the country's capability and capacity.

**Agricultural countermeasures**

The thought leadership to counter the challenges from economy and trade liberalization is to transform traditional agriculture production into an enterprise value chain based operation. Objectives are: 1) Convert the existing defensive mindset and operation to a value-added and proactive operation; it needs to focus on global branding and opportunity development, it needs to consider both industry development and sustainability, it needs to ensure international alignment and integration; 2) Expand total value chain of agriculture with integration of modern technology (cloud computing, environmental control) and to drive cross industries cooperation, develop modernized operations, drive continuous agriculture improvements, develop “optimized large, delicate small” agricultural industry; 3) Protect farmers’ rights by means of developing young talents to become farmers of this new generation, promote efficiency of natural resource utilization, enhance revitalization of farming communities and multi-functional agriculture.
Figure 2 below shows the three pillars of the total value chain of agriculture: industrial optimization; resource revitalization; and income support.

- "Optimized large, delicate small" operations
- Cross industrial cooperation
- Modern operating models

Developing large scale optimized competitive operations, is an effort that should be bundled with intellectual property development and new operating models, as well as putting agriculture on a leverage in cloud computing and environmental control technologies; with brand, market development and promotional offerings at international level for products such as: phalaenopsis (Moth Orchid), vegetable soybean, down feather; establishing agricultural industry cluster zone to drive value-added production by applying domestic agricultural material to produce export products, such as: agricultural products, food processing and ornamental fishes; establishing agricultural technology research academy, deploying proven technologies, such as animal vaccines, bio-pesticides.

Developing smaller scale operations can be driven by integrating local specialty, cultural and creative, aesthetics, and tourism all together.
Products should be high end, creative and innovative, such as: tea and associated production; international level tourism; rural revitalization has to be integrated with local industry development to maximize the total value of resource, and to create new business models by cooperation with cross industries, such as: contract farming for pineapple cake ingredients; organic products supply for group meals; postnatal food supply; expanding certification; monitoring and management of food safety, encouraging buy local products, such as: food traceability system, farmers' markets.

Policy adjustments must be in line with the total value chain concept. And the required funding should be provisioned in order to support required changes at the grassroots level. Deployment of these adjustments needs to be clearly communicated and effectively managed. A relief system for farmers should be established at suitable times; relief system can compensate the loss which was caused by import products. Results should be measured and refinements of policies need to be thorough and rational. Continuous improvement of deployment should be managed as well.

**Specific programs and practices**

The three-pillar framework of a liberalized agricultural trade at the global level involves these elements: evaluation of agricultural products; import and export guidelines; negotiation strategies; technology development; business development (brand, market, and partner), and talent development. These elements cut across three operational territories: international markets, domestic operations and special economic operation zones.

1. **Developing international markets**
   
a. **Promote Taiwan agriculture image**

   Develop an internal support system to promote export business. Consolidate all available public and private resources to drive advantageous agreements, develop export productions zones, establish export channels, develop food safety certification and traceability systems, and brand development to build a positive image of Taiwan's agricultural products that represents quality, nutritional value and safe to consume.
b. Technology focused branding

The overall strategy of agricultural technology development should be based on the trends and developments of international markets, especially the new emerging markets in Asia. Develop competitive line of business such as: animal vaccines; breeding of ornamental fishes; bio-pesticides; bio-fertilizer; feed additives and quarantine examination technical skills. Based on needs of international markets and the future growth, plans should be developed to establish agricultural technology zones with R&D capability and production as the backbone of this endeavor. Obtaining of international certificates is critical to develop creditability, and policy reinforcement is required to support further trickle-down development and ramp up effort.

c. Assistance to food processing manufacturers

In order to understand the international market needs, plans should be developed to outline the requirements of raw and processed materials, technologies and skills required. Systematically assist farmers, importers and manufacturers to produce quality, safe, healthy food for international markets. Effectively apply advanced agricultural food processing technologies for mass production of value-added products for potential needs of global markets. Food traceability is essential to gain consumer confidence. Know-how and new product development should be enhanced to ensure future business growth.

d. Establish premium fishery products

Taiwan has many premium fishery products which are widely accepted by international standards and markets. Further development should focus on: 1) obtaining international certificates such as CAS, HACCP, GMP, ISO22000; 2) branding, promotion and events marketing; 3) traceability of fishery products; 4) encouraging fishermen to expand their operations at the international level.

e. Promote export of seed, breeding materials, agricultural equipment and machinery
Continue to drive and encourage technology cooperation, import critical technical equipment, skills and maximize the use of signed agreements, memorandums to strengthen further development and export of seed and seedlings, livestock and poultry genetic breeding materials, agriculture equipment and resources.

2. Developing domestic traditional markets

Taiwan is a reputable tea producer, especially Pouchong tea and Oolong tea which have earned esteem reputation internationally. In recent years, the industry has been through a rigorous transformation which involves: adjustment of industry structure; establishment of premium tea production zones; assistance in quality assurance by manufacturers; traceability of products; assistance in obtaining certification for several tea products and development of addition tea related products.

In order to promote additional value and competitiveness of tea products, certain changes are necessary. These changes should be case to case, based on product traits, and all associated elements such as locations, artistic facets, leisure tourism, culture and creative. To create new opportunities to tea industry development, several programs will be implemented.

a. Tea safety

Establish contractual production zones, modernize facilities and tools, establish quality assurance systems, expand systematic monitoring and management of tea products, strengthen talent pool, integrate exporters and manufacturers, expand the base of manufacturing to support bulk volume, drive eco-friendly production, and actively promote tea safety and create a system to support premium tea production.

b. Certification of product origin and traceability

To avoid negative impact from knock offs or misrepresentations from other tea products, certification of tea origin and traceability needs to be further developed and reinforced. To achieve the goal of market segmentation, a
labeling system needs to be integrated with certification of product origin.

c. Packaging development

Packaging of tea products needs to incorporate with local culture elements, improve the quality of packaging, add packaging versatility and satisfy consumers’ need.

d. Expand consumer base

The traditional tea consumers base can be expanded through a careful designed campaign which involves strengthen pricing, develop new products, new ways to make tea, new channels to sell teas, and create marketing events to attract new consumers and younger generations.

e. Integration of cultural and creative industry with tourism

Tea drinking has become a delicate hobby with a touch of artistic flare in Taiwan. Tea houses have become a popular place for gathering, delicate tea pots/cups have become collector items, and souvenirs with traditional artwork found a new market place. More industries such as pottery, painting, experimental farming, and deep traveling, can benefit from the tea industry directly or indirectly in order to create a more value added business and cooperation.

f. Develop new markets

Opportunities and new markets can be developed from international events and business shows, Taiwan can organize an “International Tea Expo” to promote local tea products, to understand and to learn from other Expo participants. The ripple effect from such an event can catalyze more meaningful developments. Domestic consumers will likely consume more tea as well.

3. Developing free economic demonstration zones

The value of free zone operation is well documented and demonstrated. A dedicated demonstration zone plays a major role in Taiwan’s agricultural transformation. Free zone enables the ‘begin to end’ operation of a diversified agriculture paradigm which fully maximizes the total value chain of agriculture industry and cross
industries. Putting into advantage free zone’s capability: R&D; innovative technology; resource development; management systems of certification and monitoring; and food processing. Taiwan’s agriculture can be transformed into a global brand at the international level, and a diversified industry.

The framework of agriculture free economic demonstration – value-added agricultural operation in Taiwan is presented below as Figure 3.

**Figure 3:** The framework of free economic demonstration zone in Taiwan

**Conclusion**

Council of Agriculture in Taiwan has developed a key initiative called “Golden Decade – LOHAS Agriculture” to face the challenges of economic and trade liberalization. This initiative involves significant agriculture structure and policy adjustments to transform traditional agriculture, and increase the competitiveness of Taiwan’s agriculture. Anticipating the signing of FTP and TPP, Taiwan has started several programs in 2013, revitalization of idled farming fields, golden corridor, young farmer development and the plan to develop a new free economic demonstration
zone. Additional management plans are placed in to reduce risks, resolve issues, assess impact, and refine policies associated with the agreements and initiatives. With careful orchestration, Taiwan’s agricultural development potential can be explored and be made to soar into the international level.

* Here, CR₅ means the sum of the top 5 countries’ export/import values the total export/import values of Taiwan.

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