Session 1

Inclusive Innovation Industrial Strategy (I³s)

Propelling Jobs, Investments, and Shared Prosperity for All
Assistant Secretary Rafaelita M. Aldaba, Department of Trade and Industry

DR. RAFAELITA ALDABA is the Assistant Secretary for the Industry Development and Trade Policy Group of the Department of Trade and Industry. She has done extensive research in various development topics like regional economic integration and international trade, investment, and competition policy, among others. Asst. Secretary Aldaba is also known for her contribution in crafting the Industry Roadmap Project of DTI. Previously, she worked at the Philippine Institute for Development Studies and the Asian Development Bank. She has a doctorate in economics from the University of the Philippines, and completed Advanced Studies in International Economics Policy Research.
Session 1

Inclusive Innovation Industrial Strategy (I3s)
Propelling Jobs, Investments, and Shared Prosperity for All

Summary

- The first session discussed the drivers of growth of the Philippine economy during global economic uncertainty, the challenges of future production, the need to adopt an industrial policy for the Philippines, and the general features of the government Inclusive Innovation Industrial Strategy (I3S).

Key Points

- PH managed to grow during global economic downturn, mainly driven by growth of the manufacturing industry. Across geographic areas, several regional economies, except NCR, are still dependent on agriculture, forestry and fishery.
- But PH has low level of readiness for future production under Industry 4.0. According to the World Economic Forum, the Philippines has low level of readiness for future production considering the disruptions expected from the Industry 4.0
- PH has adopted I3S as its industrial strategy. The Inclusive Innovation Industrial Strategy (I3S) would build innovation and entrepreneurship ecosystem, remove obstacles of growth, and strengthen domestic supply chains and global/regional participation through its five major pillars on (1) new industries cluster, (2) human capital development, (3) innovation and entrepreneurship, (4) MSME start-up development, and (5) ease of doing business.

Open Forum

- How do government agencies ensure that investment agreements from the foreign trips of the President translate into actual investments for the country?

  The government conducts follow-up on countries regarding investment agreements. However, there is need to improve Philippine’s investment promotion as some countries are not familiar with the investment opportunities available in the country.

- In what industry/sector would I3S have the most significant impact?

  The agriculture sector would benefit the most from I3S. There is a need to improve the productivity of the agriculture sector by addressing its constraints through the use of more advance technology. Identifying the problems is easy but the real challenge is in implementing and executing these plans. There should be stronger collaboration between the government, academe and industry.
Presentation Outline

Inclusive & sustainable innovation-led industrial policy for poverty reduction and economic transformation

• Macro Performance & Economic Structure
  o Remarkable performance but poverty has remained

• New Industrial Strategy: inclusive, innovation industrial strategy (i³s)
  o Five Pillars and Strategic Actions
  o Top 12 Industry Priorities

• Inclusive Filipinnovation & Entrepreneurship Roadmap
  o State of innovation: strengths, weaknesses
  o vision, where do we want to go, how to get there

• Implications for Labor and Productivity & Training Agencies
Macro Performance

GDP Growth in %

Source: World Development Indicators, The World Bank

- Amid economic & global uncertainty, PH grew 6.4% from 2010 to 2017
- 2017: China 6.9%, Vietnam 6.8%, Philippine 6.7%, Malaysia 5.9%, Indonesia 5.1%, Thailand 3.9%
- PH: 2018 Q2 growth: 6%, 2018 H1 growth: 6.3%
High industry growth driven by manufacturing

Manufacturing Growth, Selected Asian Countries (%)

<table>
<thead>
<tr>
<th>Country</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>7.0</td>
<td>11.9</td>
</tr>
<tr>
<td>India</td>
<td>8.6</td>
<td>14.4</td>
</tr>
<tr>
<td>Indonesia</td>
<td></td>
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<td>Malaysia</td>
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<td>South Korea</td>
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<tr>
<td>Thailand</td>
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<tr>
<td>Vietnam</td>
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</tbody>
</table>

Industry Growth in %

- CHN (China)
- IDN (India)
- MYS (Indonesia)
- PHL (Philippines)
- THA (Thailand)
- VNM (Vietnam)
PH EXPERIENCING A MANUFACTURING RESURGENCE

- rising costs in China; growing domestic market, growing middle class, good macro performance; young English speaking workforce
- 2018 Q2 growth: 5.6%, 2018 H1 growth: 6.6%

<table>
<thead>
<tr>
<th>Period</th>
<th>Manufacturing</th>
<th>Services</th>
<th>Agriculture, fishing, forestry</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-2009</td>
<td>3.2</td>
<td>5.2</td>
<td>3.2</td>
</tr>
<tr>
<td>2010-2017</td>
<td>7.6</td>
<td>6.7</td>
<td>1.4</td>
</tr>
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LEADING SECTORS: FOOD MANUFACTURING, ELECTRONICS, CHEMICALS

- Food manufacturing dominated with a share of 33.5% in 2017
- Growth in 2017: 5%, 8.2% in 2016
Regional economies still dependent on agriculture

- Except for NCR, our regional economies are still dependent on agriculture, forestry, and fishery.
- In terms of size, the largest contributors are led by Central Luzon (14.8%) followed by CALABARZON (10.0%), Western Visayas (8.9%), Northern Mindanao (8.6%), & SOCCSKARGEN (7.4%)
Manufacturing is confined in Regions 4A, NCR, & 3

- Manufacturing activities have been largely confined in CALABARZON (41.0%), followed by NCR (18.5%) and Central Luzon (13.5%)
- Central Visayas (6.6%) and Davao (3.3%) trying to catch-up
• Huge imbalance among the regions in terms of services; services is highly concentrated in highly urbanized NCR accounting for 51.8% of total
• Outside NCR, services is quite high only in relatively large economic areas led by CALABARZON (9.9%) followed by Central Luzon (6.6%), & Central Visayas (6.2%)
New Industrial Strategy
global & domestic context

PH: Asia’s Emerging Economic Tiger

GDP Growth: 2000-2017

Poverty incidence remains high

<table>
<thead>
<tr>
<th>Region</th>
<th>Incidence</th>
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</thead>
<tbody>
<tr>
<td>ARMM</td>
<td>53.7%</td>
</tr>
<tr>
<td>N. Mindanao</td>
<td>36.6%</td>
</tr>
<tr>
<td>CARAGA</td>
<td>39.1%</td>
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<tr>
<td>Bicol</td>
<td>36%</td>
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<tr>
<td>E. Visayas</td>
<td>37.3%</td>
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<tr>
<td>Zamboanga</td>
<td>33.9%</td>
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New Industrial Strategy
GLOBAL & DOMESTIC CONTEXT

Industry 4.0 disrupting business models at an accelerated pace, is PH ready?

- PH: low level of readiness for future production, at risk
- Weak institutional framework, human capital, technology & innovation (WEF 2018)
- Upgrade technology platform, reskill/up- skill workers
- Innovation: animating force behind the future of production
New Industrial Strategy
GLOBAL & DOMESTIC CONTEXT

Overall Goal

◆ Build innovation & entrepreneurship ecosystem
   -> upgrade & develop new industries

◆ Remove obstacles to growth
   -> attract investments, create jobs

◆ Strengthen domestic supply chains & participation in global/regional value chains
   -> link manufacturing with agriculture & services

Role of Government: address coordination & market failures; create proper environment for private sector growth
New Industries, clusters: supply/value chain gaps; domestic & export market; trade & investment promotion; incentives

Human Resource Development: upgrading education curricula, skills training programs, improving digital skills

MSMEs: access to finance, markets, skilled labor, technology
7Ms: mindset, mastery, mentoring, money, machine, market, models

Innovation & Entrepreneurship: government-academe-industry linkage, market-oriented research; R&D centers, innovation incentives; shared facilities & support for startups, regional inclusive innovation hubs

Ease of Doing Business: simplification of processes, automation; power, logistics, infrastructure

Strong government-academe-industry collaboration

i³S Five Major Pillars
Investment activities that are efficiency-seeking & would cater to both domestic & export markets

Opportunities
- New high level growth trajectory
- Growing market, middle class
- Political stability
- Young, English speaking workforce
- Stable business confidence
- AEC & FTAs
- Industry 4.0

100+ Million Consumer Market as springboard

PH as regional hub, linked with GVCs

Strategic Policies
- Trade & Industry
- Infrastructure
- Investment Promotion
- Skills training, HRD
- Innovation, R&D
- Green growth
- MSME & startup development

Challenges
- Complex regulations
- High cost of power
- Lack of ports, airports, roads
- SME access to finance
- Supply chain gaps
- Industry 4.0
Top 12 Priorities for Both Domestic & Export Markets

- Electrical & Electronics
- Auto & Auto Parts
- Aerospace Parts
- IT BPM, E-Commerce
- Tool & Die, Iron & Steel
- Chemicals
- Agri-business
- Shipbuilding, RORO
- Furniture, Garments, Creative
- Innovation, R&D
- Transport, Logistics, Construction, Tourism
- Climate Change, Parts & Components

Hi-technology, innovation/R&D, infrastructure, regional imbalance, labor-intensity, sustainability, spill-over/multiplier effects, value/supply chain linkage
Regional Industry Priorities

**CAR**: coffee, processed vegetables, aerospace, electronics, tourism

4B. seaweed, tablea, rubber, coco coir, tourism

5. metal casting, coco coir, health care, agribusiness

6. processed meat, processed shrimp, tourism

7. seaweed/carrageenan, dried mangoes, furniture, IT-BPM, shipbuilding, tourism

10. rubber, bamboo, cacao, coco coir, coffee, agribusiness, tourism

11. processed meat, seaweed/carrageenan, cacao/tablea, agribusiness, tourism

1. coffee, cacao, processed fruits, processed meat, tourism

2. processed fruits, processed meat, coffee, furniture, cacao, agribusiness

3. bamboo, furniture, aerospace, processed meat, shipbuilding, aerospace

4A. auto, electronics, petrochemical, IT-BPM, chemicals, aerospace

7. seaweed/carrageenan, dried mangoes, furniture, IT-BPM, shipbuilding, tourism

8. processed meat, copper, processed marine, processed fruits, natural health, agribusiness

9. rubber, cacao, processed fruits (mango), coconut, agribusiness

12. rubber, palm oil, processed fish/aquamarine, tourism, agribusiness

13. processed marine, palm oil, rubber, agribusiness

**ARMM**: coffee, rubber, cacao, palm oil, agribusiness
Global Innovation Index 2018

Innovation is at the front & center of our new industrial policy

ASEAN
5. Singapore
35. Malaysia
45. Viet Nam
44. Thailand
57. India
73. Philippines
85. Indonesia

Underlying Framework of PH industrial strategy
COMPETITION- INNOVATION-PRODUCTIVITY NEXUS
Global Innovation Index

STRENGTHS:
- graduates in science & engineering (#17)
- gross capital formation, % of GDP (#32)
- market capitalization, % of GDP (#17)
- trade, competition & market scale (#30);
- firms offering formal training (#9);
- research talent (#7);
- high & medium high-tech manufactures (#27)
- ICT services exports (#8)

WEAKNESSES:
- political stability and safety (#117)
- ease of starting a business (#121)
- expenditure on education, % of GDP (#109)
- pupil-teacher ratio, secondary (#95)
- ease of getting credit (#111)
- ease of protecting minority investors (#112)
- science & technical articles (#120)
- Institutions (#93)
- Market sophistication (#100)

- Creative outputs (#92)
- ICT access (#86)
- ICT use (#83)
- Innovation linkages (#93)
Limited coordination among research-granting agencies

- Community-based participatory action research (CPAR)
- National Technology Commercialization Program (NTCP)
- National Commodity Programs: rice, corn, cassava, HVCs
- National thematic programs: organic agriculture, climate change, biotechnology
- Block Grants: P10M up to 2 years
- Regular GIA: P500-P10M
- Frontiers in research excellence: P1M up to 2 years
- Industry 4.0 grants: HEI to partner with industry
- International Collaborative Grants
- Masters or Doctoral Theses
- REALM: capacity building

- IPR assistance thru TAPI
- Technicom: technology innovation for commercialization
- SETUP
- TBI Program: diffusion of technology
- S4CP: NICER, R&D Leadership Program
- CRADLE, BIST
- Fabrication Laboratories, Shared Services Facilities, Negosyo Centers
- Intellectual Property Protection
- Slingshot, Funding: SBCorp
- RIPPLES
- R&D incentives & incentives for new industries, technologies
- Industry development & roadmaps
Weak linkage between industry & academe

- Low GERD due to limited resources
- 42.9% of surveyed firms are innovation active
- Lack of appropriate incentives to produce competitive & relevant research at universities
- Widespread mistrust between university & industry communities, more competition than collaboration
- Lack of strong culture of research in universities
- Open innovation exist in the supply chain but not with academe
- Lack of STEM-oriented PhD programs, limited post-doctoral research training
- No critical mass in terms of volume of research
- Difficulties in procurement laws
Strong collaboration among government, academe, industry — connected country
Strong business & policy environment — sustainable growth
Creative talent pool: critical mass

Source: Startup Commons, From Innovation Ecosystems to Startup Ecosystems, 2017; World Economic Forum 2012
Vision: Inclusive Innovation & Entrepreneurship Ecosystem

- Strong collaboration: connected country
- Strong business & policy environment: innovation, jobs, investment
- Creative talent pool

- Incubation of innovation
- Academe industry partnerships to conduct basic, applied, market oriented research
- Support by government & funders
- Involve researchers & experts & industries across the country
How do we create an inclusive innovation & entrepreneurship ecosystem?

1. Hard & soft infrastructure, acceleration of commercialization: incentives, enabling environment

2. Position innovative industries for rapid growth

3. Family & friends, private equity, venture capital, angel investors, access to capital

4. Entrepreneurship, startups SMEs
   - Entrepreneurial culture, support for start-ups: mentors, advisors, incubators, accelerators, professional services

5. Government-Academe-Industry
   - Relationships, market driven research, job-ready graduates, entrepreneur-specific trainings

6. Skilled workforce
   - HRD for innovation, innovation-ready workforce: technical & management talent

Innovation Policy & Commercialization

Industry Clusters
To promote collaboration & closer coordination within government

Expand DOST-DTI MOU

DOF: Fiscal support for innovation & R&D, start-up activities, MSMEs, LEs, commercialization process
DILG/LGUs: innovation support
Innovation policy monitoring/evaluation of implementation
Market-oriented research grants
HRD & curricular changes

DOST: R&D, commercialization support

DTI: BOI, IPOPHIL

NEDA: DOF

DICT

DA

CHED

DEPeD

DOLE

TESDA

LGUs

DILG

DOF

Physical innovation infrastructure

Market studies, linking industries with academe & other government agencies

Market-oriented research grants, commercialization support
Regional Inclusive Innovation Hubs/Centers

- Regional & local inclusive innovation hubs: cornerstone of i3S, lie at the heart of our economic transformation
  - Bridge gap between industries & academe
  - Create regional ecosystem: virtual & physical made up of universities, R&D labs, S&T parks, incubators, fab labs, co-working spaces, investors, & LGUs, start-ups, SMEs, LEs
  - DOST & other agencies, industry, & academe
- Innovation focus on electronics, auto, aerospace, chemicals, IT-BPM, agribusiness
UPGRADING TRAJECTORIES FOR PRIORITY INDUSTRIES

R&D, IC design, facilities for advanced products & technologies, auto electronics, aerospace electronics, batteries, consumer electronics

ESO, data analytics, legal process outsourcing, health information management (preventive health, remote), animation & game development, IT services, global-in-house, services embedded in manufacturing

mangoes, bananas, nuts, coffee, cacao, coconut, & other high value crops

Auto electronics, ADAS components, engineering services outsourcing, electric motor powertrains like battery, EV

Flight control actuation systems, servo actuators, servo valves, galley inserts, structures & equipment, seat parts, lavatories, interior fit-out, panel assembly, electronics, airframes & sub-assemblies; MRO: base & line maintenance
UPGRADING TRAJECTORIES FOR PRIORITY INDUSTRIES

Industry Upgrading Short to Medium-run
• Close supply/value chain gaps
  o Auto: metal casting, forging, machining
  o High value added parts: Auto electronics, ESO, R&D, sensors, ADAS
• Accumulation of labor-intensive industries
• Products with good balance of semi-automation & labor-intensive work
  o Assembly & mid-inspection require labor-intensive work

Mass housing, land, air, & water transport, airports & seaports
Manufacturing & design
RORO as well as small- & medium-sized vessels
Integrated steel manufacturing
Intermediate parts & components supply especially those produced by MSMEs

Petrochemicals, oleo chemicals, basic chemicals, plastics
**FIND THE RIGHT BALANCE BETWEEN SKILLS & TECHNOLOGIES**

**Labor & Employment Profile**
- 41.3M Employed (94.6%)
- 7.2M underemployed (17.5%)
- 2.34M unemployed (5.4%)
- 43.7M Labor force (61.5%)

**Structure of Employment**
- 56.5% Services
- 22.4% Industry
- 18.9% Agriculture, Fishing, Forestry

**Characteristics of the Unemployed**
- 323K Elementary (13.8%)
- 998K High School (42.6%)
- 161K Post secondary (6.9%)
- 835K College (35.7%)

**Skilled workers: 30M, 73% of total**
**Unskilled: 11M, 27%**

**Skilled: Managers 16%, service & sales 15%, skilled agricultural 13%, craft & related traders 8%, plant & machine operators, assemblers 6%**

**STEM graduates declined from 235K (37%) in 2015 to 214K (30%) in 2017**
**Business Administration & Education & teacher training graduates increased from 296K (47%) to 341K (49%)**
i3S is vital for sustainable & inclusive development
innovation is at the heart of our economic transformation

• PH new industrial policy is innovation-focused
  o Linking Manufacturing with Agriculture & Services
  o inclusive & sustainable growth: industries must be productive
  o Innovation is crucial to maintain high productivity level

• Innovation and Entrepreneurship roadmap
  o Innovation strategy: creative, connected communities
  o Government-academe-industry: basic & applied research providing solutions to societal issues & industry needs

• Regional inclusive innovation centers
  o Bridge gap between innovation & entrepreneurship
  o No one size fits all approach: regional/local conditions
  o Industry clusters, strong business environment: creation of more & better jobs, investments, poverty reduction
i3S for sustainable & inclusive development
Propel Jobs, Investments, Shared Prosperity for all

- Human capital is crucial for innovation & entrepreneurship
  - knowledge production, technology adoption, productivity growth
- Educational system to produce the quality of human capital that can ignite innovation & entrepreneurship
  - Basic, secondary, tertiary: values, skills & competencies to advance culture of innovation & entrepreneurship
- Government-Industry-Education collaboration to formulate policies & training programs that are much more responsive to the fast changing dynamics of industry, avoid mismatch between technology & skills
- Low-skilled, low-educated & routinized jobs are the most vulnerable to the adverse effect of technological change
- Provide safety nets through innovation & R&D with education and training