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*Sow, Grow,
Reap, Repeat
The Next Wave*



"It's not possible." — Case

"No, it's necessary." — Cooper

-Interstellar-

4Q 2015

Heyokha's harvest

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What we have learned this quarter

Sow, Grow, Reap, Repeat

Interstellar

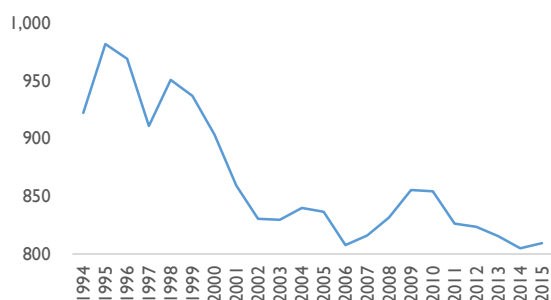
In Christopher Nolan's epic science fiction film *Interstellar*, a catastrophic crop blight has made farming increasingly difficult and threatens humanity's survival. A crew of astronauts had to travel through space into a wormhole in search of a new home for humanity.



On planet Earth, it is estimated that for the next twenty years an area the size of Mongolia is expected to be converted by urban development. While there is no doubt farmland on Earth is continuing to shrink, we are afraid that we would not be able to jump through a wormhole in a spaceship to inhabit another planet anytime soon. Not even for Elon Musk or Jeff Bezos.

When looking at Indonesia, it could be comforting to see that farm crop area has been expanding by 0.7% per year between 1994-2014. Yet, growth of Indonesian farm land is outpaced by the rapid growth of the Indonesian population.

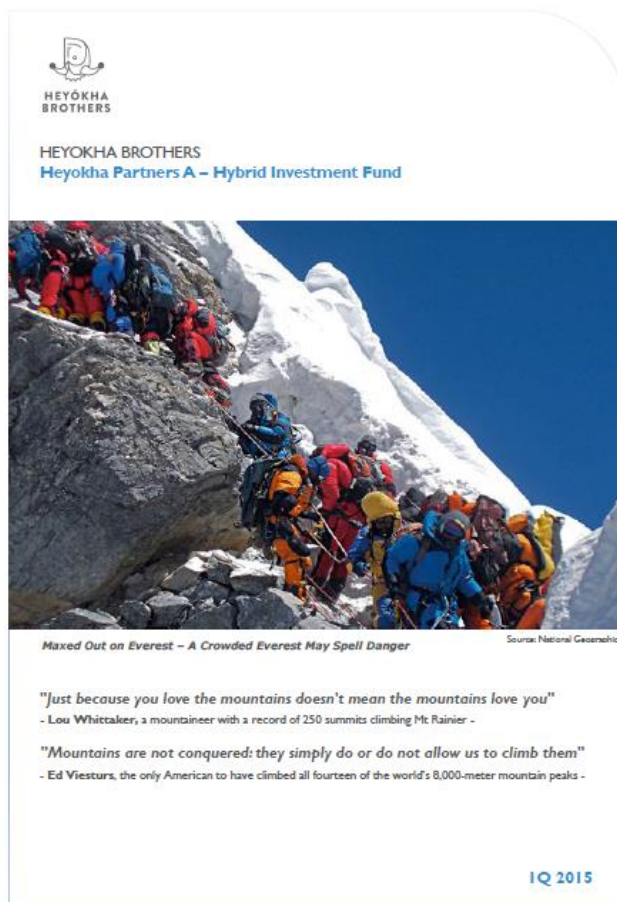
Indonesian crop area per capita (in sqm)



Source: National bureau statistics, Heyokha

The United Nations estimates that the Indonesian population will grow from the current population of 253 million to 322 million people in 2050. If current trends are to continue, the question is who is going to feed the hungry mouths of the Indonesians in the future?

No wonder that food security has been somewhere on the agenda of the Indonesian government for years. Yet, the current government has taken the importance to a whole new level.



In our IQ 2015 quarterly report, we have taken an initial positive outlook for Indonesia's agriculture sector. To solidify our thesis, Heyokha recently spent two weeks travelling throughout rural land of Java.

We witnessed the inception of an agriculture boom first hand. We are convinced this is now one of the most credible and effective reform themes by the Jokowi administration. It has potentially far reaching implications for Indonesia's growth trajectory. From basic goods such as cigarettes to bigger ticket items like motorcycles or even cars.

We are thrilled.

Manufacturing renaissance in Indonesia? ...Not yet

Before we continue to elaborate on agriculture in Indonesia, we will first explain why we are less enthusiastic about the prospects of the manufacturing industry in Indonesia.

Yes, there are indicators that manufacturing could do well in Indonesia. For example:

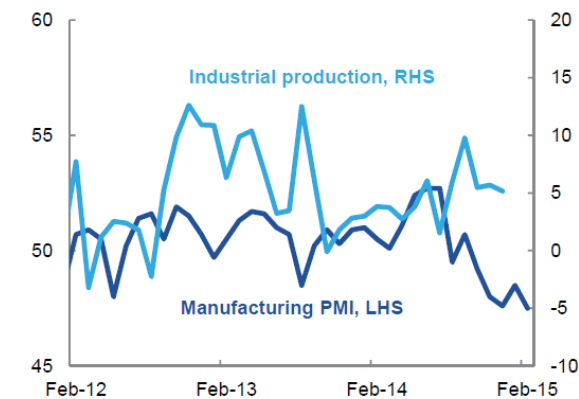
1. According to a JBIC survey, Japanese companies rank Indonesia as the second most promising country for overseas expansion;
2. Another positive indicator for manufacturing is the latest FDI data showing that FDI was still up 19.2% in 2015 vs. 2014, from IDR 307tn to IDR 366tn. Manufacturing received the biggest inflow with 40.2% contribution;
3. Also the growing size of the middle class in Indonesia and a population of 250mn could add to a positive outlook for manufacturing in Indonesia.

Now, should we be bullish on the prospect of a manufacturing renaissance in Indonesia? We are not getting overly excited.

For example, when looking at industrial production data we see a clear decline over the 2012-2015 period. This is confirmed by the Purchasing Manager Index that shows a trend of deteriorating conditions.

Industrial production indicators trending down

PMI diffusion index and production index growth yoy, percent



High costs of doing business hampering Industrialists

In order to better understand developments in the real economy we continuously follow our business contacts in the manufacturing industry, a sector dominated by unlisted firms.

Some of these industrialists have manufacturing facilities in other Asian countries outside of Indonesia, allowing international comparison.

While our contacts are recognising (or even emphasising) the potential for the re-industrialisation of Indonesia, they quickly pointed out the high cost of manufacturing in Indonesia along with all their other frustrations.

Input cost price comparison

Input cost	Unit	Indonesia	Vietnam	China
LNG	(US\$/mmbtu)	9.5	5.2	4.2
Gas oil/Diesel	(US\$/liter)	0.7	0.5	0.8
Minimum wages	(US\$/month)	221	138	301
Electricity	(US c/Kwh)	12.1	10.1	8.5
Lending rate	%	12.5%	7.0%	4.4%
Cement price	(US\$/ton)	87.5	67.7	58.3

Source: Expert interviews, company data, Bloomberg

When comparing overall input cost for manufacturing, Indonesia is simply not very competitive.

Severance package comparison

Country	Eligible contingencies (D/R/B/I/O/E)	Defined benefits for redundancy				Generosity index
		Benefits at				
		1-yr	5-yrs	10-yrs	20-yrs	
Indonesia	D, R, B, I, E	13.0	34.7	56.3	108.3	8.5
Vietnam	D, R, E	4.3	21.7	43.3	86.7	4.3
China	D, R	4.3	21.7	43.3	86.7	4.3
Philippines	R, I, B	4.3	21.7	43.3	86.7	4.3

Note: Dismissal (D), Redundancy (R), Bankruptcy (B), Incapacity (I), Old Age (O), End-of-services (E)

Source: IZA



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While the Indonesian minimum wage threshold appears to be reasonable, we learn that there are many hidden elements that make Indonesia uncompetitive to rising manufacturing power houses like Vietnam.

First and foremost is the super rigid labour law, thanks to the infamous manpower act of 2013 (Law no 13 of 2003).

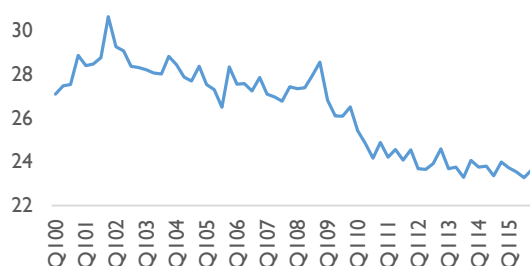
Firing a worker is not only difficult and expensive but given the buying power of industrialist's clients, the margins on goods sold are too low to allow for a proper accrual for such exceptional costs. This makes it very hard for them to restructure their companies and adapt to a changing business environment.

While the labour law is meant to protect workers, we learned that in practice, the rigid labour law incentivises industrialists to make use of employee outsourcing companies.

Some of these outsourcing companies tend to ignore labour rights with respect to minimum salary and severance payments. As industrialists feel less ownership or responsibility for outsourced employees there is little incentive to train them, leading to reduced productivity.

Indonesia's Manufacturing GDP

As % of total GDP, on a quarterly basis



Source: Bloomberg, Heyokha

Other issues mentioned by our sources are the increasingly difficult environment to hire expats and the fact that Indonesia is no party to the Trans-Pacific Partnership (TPP). The latter is giving Vietnam more competitive advantage.

Reforms set to improve Indonesia's business environment

On a positive note, we observe that the current administration of Jokowi plans to implement reforms that should improve the business environment for manufacturing companies in Indonesia.

In particular, the President Jokowi administration has made significant progress in improving the new wage formula. The new format is simpler, more predictable and based on objective measures such as the inflation rate and GDP growth.

In principle, this is eliminating the negotiating process between companies and workers, which always led to disrupting labour strikes.

We wonder if President Jokowi, with no vested interest and his first-hand experience as an industrialist himself, will go further with reforming Law no 13 of 2003 at some point. That would for sure be a game changer for re-industrialisation of Indonesia.

With respect to the TPP, we understand that President Jokowi is willing to risk some nationalistic opposition and aims for Indonesia to join the TPP soon.

Indonesia export and import growth

Three-months moving average



Note: Export from manufacturing won't replace export of commodities anytime soon

Source: Bloomberg, Heyokha



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Overall, we feel that there could be some low hanging fruits to attract some basic manufacturing activity given the low base and the attractiveness of the domestic market. Real contributions to the economy however, would be an increase in manufacturing destined for exports.

Yet, given the difficulty and high cost of doing business in Indonesia, we feel that manufacturing

companies would prefer to serve international markets out of countries that are more competitive.

Certainly, until the reforms get delivered, we won't be expecting any global brands like Samsung, Huawei, Lenovo and Xiaomi to be exporting out of Indonesia anytime soon.

Agricultural reform as a driver of growth

We have recently read "*How Asia Works*" by Joe Studwell.

This fascinating book tells about how government intervention in East Asia led to the fastest progressions from poverty to wealth the world has ever seen.

The findings in the book run counter to almost everything that economists have claimed and we believe it reveals deep truths about drivers of accelerated growths.

These drivers essentially boil down to three consecutive critical interventions that governments used to speed up economic development:

1. Maximise output from agriculture, which employs the vast majority of people in the country;
2. Direct investment and entrepreneurs towards manufacturing;
3. Intervene in the financial sector to focus capital on intensive, small scale agriculture and on manufacturing development.

Japan, Korea, Taiwan and China are all examples of countries who experienced a rapid growth from being a third world- to a modernised country by moving up the value chain from basic farming activities into high-value-add manufacturing activities.

What these governments have in common is that they all radically restructured agriculture after the Second World War, focused their modernisation

efforts on manufacturing, and made their financial system slaves to these two objectives.

They thereby changed the structures of their economies in a manner that made it all but impossible to return to an earlier stage of development.

Case in point: China's agricultural reform in 1978 was the flash point of accelerated growth

In China's case (very similar to Japan, South Korea and Taiwan) the agrarian reforms and later successful development of an export-based manufacturing model, coupled with tightly-controlled capital flows, have transformed the country into the world's second largest economy.

Chinese agriculture output growth

Subsector	Annual growth rate (percentage)		
	1952-1978	1978-1984	1984-1987
Crops	2.5	5.9	1.4
Grain	2.4	4.8	(0.2)
Cotton	2.0	17.7	(12.9)
Animal husbandry	4.0	10.0	8.5
Fishery	19.9	12.7	18.6
Forestry	9.4	14.9	-
Sidelines	11.2	19.4	18.5
Agriculture (overall)	2.9	7.7	4.1

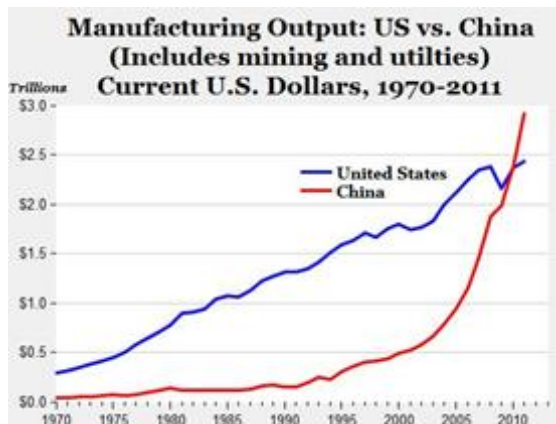
Note: China's agriculture growth rate more than doubled since the agriculture reform in 1978

Source: Chinese Ministry of Agriculture Bureau

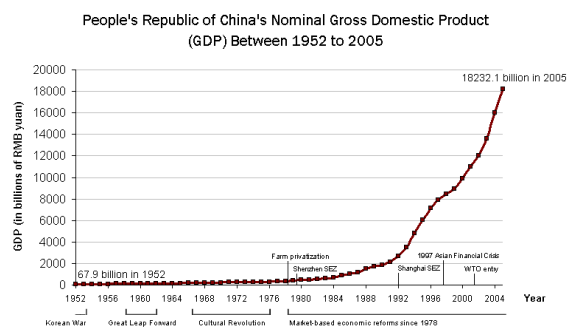
From the table on the previous page it can be observed that the growth of China's agricultural output more than doubled after the agricultural reform in 1978. This was followed by an exponential growth of the manufacturing output and GDP that continued up to recent years.



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Source: United nations



Note: All started from China farming privatisation in 1978

Source: Wikipedia

Why is agriculture and land reform such an important stepping stone to a country's transformation?

It's simple: with most resources concentrated in agriculture, this sector offers poor countries the most direct and immediate impact to increase economic output.

Yet, (concentrated) land ownership by landlords is often preventing tenant farmers to create wealth for themselves. For this reason, it is important that land ownership is not too concentrated and that farmer can obtain title to the land they farm. Besides increasing farmers' income, this has also proven to increase production output.

In addition to having a better sense of ownership, farmers can use their land to obtain credit to fund required production inputs such as seeds, fertilisers, beasts of burden and machinery. In return, enabling

farmers to create wealth initiating a virtuous circle as below:

1. **Higher productivity** – this translates to higher farmers' income which is the best way to incentivise farmers to invest more;
2. **Higher consumer good demand** - big yield gains increases rural income which in turn increases demand for consumer goods;
3. **Better trade balance** – early developing countries don't have enough foreign reserves. One of the easiest way to blow away the trade balance is to spend it on imported food as oppose to machines and technology to increase productivity;
4. **More room for industrial investments** - increases of agriculture output leads to an increased trading surplus, which implies that more savings can later be directed to industrial investment.

Funny facts

Innovation does not always lead to more production. As mentioned in the book "Why Nations Fail" written by Acemoglu and Robinson: Even technological innovation doesn't necessarily lead to increased agricultural production.

In fact, it is known that a major technological innovation, the introduction of the steel axe among a group of Australian Aboriginal peoples, led not to more intense production but to more sleeping, because it allowed subsistence requirements to be met more easily, with little incentive to work for more.

Myth of Scale in Farming



*Small scale gardening yields superior output
Large scale farming, it is not a must*
Source: laboratoryequipment.com

The book highlights how the conventional believe that farming needs big scale with big equipment to be productive is half baked.

In fact, the exact opposite is true for the four East Asian countries. Land reform programs together with government support (rural credit, marketing institutions, agronomic training, seeds, fertilisers, irrigation etc.) created a new type of market.

It was a market in which owners of small household farms were incentivised to invest their labour and the surplus they generated towards maximising production.



A farmer/gardener in Japan
Source: laboratoryequipment.com

In Japan, Korea, Taiwan and China farming became a form of “large scale gardening” where all family members tended to plots of no more than a hectare.

The result was massive increased yields in all those four countries. Per hectare wise, the output is significantly higher than at a large scale farm.

If that is the case, why is not everybody doing gardening style farming? This is simply because the routines required to optimise output requires a lot of labour.

So in countries where wages are higher, the extra output would not offset the extra labour cost. Yet, for a poor country at an early development stage, an excess workforce is best served by maximising its crop production until the return on any more labour falls to zero.

Studwell notes that in the first ten to fifteen years following the shift to small scale household agriculture, gross output of foodstuffs increased by somewhere between half (Japan) to three-quarters (Taiwan).

Brief History of Indonesian Farming

“Common mistake by many developing countries strategies is characterized by what the economist Michael Lipton dubbed urban biased where there is a tendency of the urban elites to undervalue farmers”

Joe Studwell, author of “How Asia Works”

Many developing countries strategies are characterised by a so called “urban bias”, meaning that there is a tendency of the urban elites to undervalue farmers. This is very true to south-east Asia today where there is far too little attention paid to agriculture.

This was not just bad for farmers, it was bad for development overall.

When was the last time that Indonesia had a President that paid attention to agriculture? Every Indonesian President will always be compared in terms of agriculture reform policies against President Soeharto.



President Jokowi with Ministry of Agriculture, Amran Sulaiman and farm productivity.

The President means business.

Source: Harian nasional

Soeharto arguably pioneered the country's economic growth and industrialisation.

Indonesian agriculture growth

	Consolidation 1967-78	Acceleration 1978-86	Deconstruction 1986-97	Crisis 1997-01
Agri GDP	3.39%	5.72%	3.38%	1.57%
Agri output	3.57%	6.76%	3.99%	-0.47%

Source: Analisis Ekonomi Pertanian Indonesia, Bustanul Arifin, 2004

In the era of President Soeharto, Indonesia entered the golden era of farming, when the country's agriculture GDP grew by 5.7% p.a. during the 1978-1986 period.



Young President Soeharto already in the fields

Source: merdeka.com

This golden era was marked by a proud moment when the Food and Agriculture Organisation (FAO) invited President Soeharto to address its 40th anniversary conference in 1986. The invitation was made on the back of Indonesia's triumph in achieving rice self-sufficiency.

This golden moment was especially memorable for President Soeharto, considering that just two decades earlier Indonesians were told to eat corn to conserve falling forex reserves.



Grey hair President Soeharto still in the fields

The golden era didn't happen overnight. To put it into historical context, Indonesia received an oil windfall in the 1974-80 period, equal to 16.6-26% of the country's non-mining GDP!

Indonesia earmarked some of this windfall to invest in agriculture and rural development: irrigation, seed, fertiliser, and the expansion of the arable land.

In terms of irrigation, serious rehabilitation and irrigation extension were given high priority and by 1980 more than half of the farm land area in Java was extended.

In addition, the growth of food crop production was greatly aided by the invention of high yielding rice varieties by the International Rice Research Institute in the Philippines. This all contributed to the golden era of 1978-1986.



President Soeharto (1967-1998) and his natural love for farming, proud moment when receiving rice self-sufficiency award from FAO director-general Edouard Saouma



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Another important feature under President Soeharto era was intensive transmigration program from heavily populated Java and Bali to other islands.

The intention was to achieve a more balanced population density and open up new agricultural production area estimated to amount to 630k ha. At its peak, no less than 2.5 million people moved from Java and Bali to less populated islands.

There are plenty of social changes caused by the transmigration program, and as such, it would be much more difficult to undertake such a program in a now democratic Indonesia.

The golden era of farming didn't last very long, unfortunately. The tendency of the urban elites that run developing countries was to undervalue farmers and "move up the value chain" by focusing on industrialization.

Rice self-sufficiency was quickly followed by complacency and wrong perception that farming sector development would continue indefinitely and automatically.

The farming sector was taken for granted in the period that followed (1986-1997). The policy makers paid too little attention to this sector and the growth rate of Agriculture GDP fell to below 3.4% and plunged further during the Asian crisis era to sub 2%.

Not to mention the systematic corruption in a later stage that has reduced the effectiveness of the agriculture policies.

Traditionally, household farms played a vital welfare role as it provided a place where family members working in the city could return in periods of economic downturn.

However, due to the negligence of the agriculture sector, the migrant factory workers laid-off in 1998 migrants could not rely on their family farms when they needed it the most.



Low growth of Indonesian farming sector has led to the failure of the sector to play welfare role during Asian crisis era in 1997-98. Important lesson to learn?

Source: Tribunnews.com

During the subsequent "reformasi" era (1998 onwards), irrigation networks - primary, secondary, and tertiary - were neglected by both central and regional governments.

The central government assumed that under regional autonomy, the responsibility to take care of irrigation networks belongs to the regional government. Yet, the regional government lacked both the experience and interest to take over responsibility from the central government.

One could figuratively write a 200-page report on this irrigation mess. It is just ... sad. If the reader of this report would believe that Indonesia has already surpassed the great potential of agricultural development, then let's take a look at the current issues that Indonesian agriculture is facing.

Current issues with Indonesian agriculture

Organisations like the World Bank, the FAO and OECD aim to assist the Indonesian government to improve social and economic well-being. Agricultural reforms are high on their agenda. We summarise some of the top issues identified by such organisations below:

1. Poor infrastructure – there is a very urgent need to retire, replace and/or upgrade existing Indonesian infrastructure to ensure its integrity and meet



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development needs (irrigation, water resources, road-access to markets);

2. Insecure land titles – the government should accelerate the titling of agricultural parcels to increase land security and improve farmers' ability to access credit and make productive investments in technology;

3. Low spending level on agricultural research and extension;

4. Limited availability and low quality of data about production and consumption. Without this data, it is hard for the government to effectively intervene in the market;

5. Low level of technology and information (such as the adoption of innovative high-yielding and high-variety seeds);

6. Small farm size – Indonesians small average farm size limits scale and rate of mechanisation. (Fortunately, gardening approach we mentioned earlier means small could even be productive);

7. High logistics costs – high shipping costs due to significant backhaul problems for ships returning to Java from eastern Indonesia. Congestion in major cities and poor road maintenance in eastern Indonesia also drive up costs.

Despite of Indonesia's long history of planned developments of the agricultural sector, most of the issues above are still related to very, very basic facilities. This means that there is significant catching up to do and that there is ample room for growth of the sector.

In Indonesia, we understand very well the beauty of the low base effect. It's all upside from here!

With the country's renewed focus on agriculture, are we about to re-enter the golden era of farming?

The importance of proper irrigation

According to American anthropologist Clifford Geertz, adoption of the better types of seed and fertiliser will gain momentum only once the leading input, i.e. irrigation, was in place. India is a case in point. A study by Bhalla and Alagh in 1979 found that access to irrigation network has allowed farmers in many areas to take advantage of the new technologies, leading to significant yield improvement.

President Jokowi administration's relentless focus on irrigation seems like a step in the right direction – see Irrigation section on Page 16.



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Back to basics: Indonesian government prioritises agricultural development

“When crisscrossing the island of Java by car or airplane, it would be understandable to mistake it for the mythic garden of Eden, as it is incredibly lush and intensively cultivated – with nearly every square inch of space producing food crops of one type or another”

Michael Shean, analyst at USDA



Indonesia's fertile soil is both blessing and a curse.

Indonesia's government has placed agricultural development as a top priority on its agenda. When looking at Jokowi's nine priorities agenda for his presidency up to 2019, it is important to note that five of eleven programs aimed at achieving economic independence are directed to improve the agriculture sector.



Shoot two birds with one stone (Populism or Prosperity or both?)
Source: Kompas.com

This clearly shows how serious the government is about fixing the abandoned sector.

Nawa cita - Jokowi nine-hopes (VII. Economy)

- 1) Expand the irrigation network to cover 3 mn ha of rice fields
- 2) Open 1 million hectares of rice paddies outside Java
- 3) Build a Bank for farmers and small businesses
- 4) End the conversion of agricultural land
- 5) Cut energy imports by promoting exploration at home
- 6) Construct more gas pipelines
- 7) Prioritize the use of coal and gas to fuel electricity
- 8) Achieve a financial inclusion ratio target of 50 percent
- 9) Target a tax ratio of 16 percent
- 10) Restrict the sale of national banks to foreign investors
- 11) Increase research in agriculture and industry

Source: General Elections Commission

Some have the view that President Jokowi's agriculture push is simply a populist policy (some estimated 30-40% of Indonesians are still farmers) and that focus should be more towards industrialisation.

Yet, as we pointed out earlier, we share the opinion that agricultural reforms have been the essential building block to propel East Asian countries to permanently say goodbye to poverty. As such we are supportive of these policies.

Number of programs are already underway

We have summarised a selection of the current and ongoing agriculture reform plans in the table on the next page. When tracking the progress of these plans, it turns out that most are actually being implemented and that farmers are witnessing improvements.

Other than the headline grabbing agriculture reforms, early this year the government initiated another policy that provides a very attractive crop failure insurance scheme for 4 million farmers, covering some 1 million ha area.

The price of the insurance premium is USD 13 per ha and pays out USD 440 ha in case of crop failure. This covers about 85% of the planting costs. It is a good deal for farmers and should encourage farmers to plant with less hesitation.

With the insurance, we believe prime/seed and hybrid seed adoption should be faster since investments into better quality production inputs is more protected. Therefore, we believe the overall production yield should improve as a result of this policy.

Reform plan and their progress

Reform plans	Result	Comment
1) Open up 1 million hectares of new agricultural production area. The GOI will identify forest area reserves (HPK, convertible forestry area) as well as wetlands suitable for conversion to agricultural uses.	✓	Last year, government through Perum Perhutani has converted more than 80,000 ha forestry area to farm land.
2) Rehabilitate existing as well as creating new irrigation systems that connect watersources like dams and rivers to tertiary irrigation systems.	✓	Farmers confirm that the networks are being improved and are positive about the role of the army in this
3) Encourage local governments to stop converting agricultural land to non-agricultural uses by implementing Law No. 41/2009 on Sustainability Food Agricultural Land Protection.	✗	We still see farm land conversion to real estate.
4) Establish 1,000 seed-independent villages. The MOA will play a role in planning the programs and activities, as well as financing the establishment of 1,000 seed-independent villages.	?	The farmers are not aware of this
5) Encourage the development of agro-processing facilities. The Ministries of Agriculture, Industry, Finance, and the local government will be encouraged to develop regulations that facilitate post harvest processing development.	?	The farmers are not aware of this
6) Establishment of Agricultural Unit Bank (BUP). The Indonesian Ministry of Agriculture will establish an Agricultural Business Bank, the Indonesia Financial Services Authority will issue BUP permit, and the Ministry of Finance will set up the BUP's	?	The farmers are not aware of this
7) Better control of food imports through applying import restrictions to more staple foods and basic commodities.	✓	Bulog became the sole importer for rice and corn. Farmers indicate to be happy with the current price levels
8) Expansion of food crop reserve capacity by injecting IDR 2tn into Bulog to construct warehouses and silos for rice and corn	?	The capital has already been injected into Bulog, but news about construction has not reached us
9) Corn seed subsidy for 1 million ha of corn harvested area or equivalent to 15,000 ton corn seed.	✓	The farmers are receiving the free seeds
10) Fertilizer subsidy	✓	The farmers are receiving the subsidised fertilizer
11) Dams and retention basin development. The government plans to develop 49 dams and more than 1,000 retention basin in 2014-2019. Ten of these dams are planned to be built in 2016.	✓	We witnessed some construction works for dams. The GOI indicated that 8 out of the 10 dams to be built this year will be tendered in
12) Government to distribute 62,000 unit of agricultural equipment such as tractor and water pump to the farmers.	✓	The farmers received the equipment through the farmers association
13) Introduction of crop failure insurance by the state owned insurance company PT Jasindo.	?	Introduced at the end of 2015, yet it seems farmer are not yet aware of this
14) Direct funding of villages to be used for infrastructure projects such as roads, bridges and the rebuilding of the tertiary irrigation network.	✓	We witnessed completed restauration works for itertiary irrigation systems

Source: coordinating ministry of economy (item 1 to 8), ministry of agriculture (item 9 - 13), Heyokha analysis

**More details about our efforts to validate the implementation of the government plans can be found later in this document*

We see major upside from government's focus on fixing the irrigation problems

As indicated by the World Bank in its March 2015 report about Indonesia, the weak apparent impact of historic government spending on productivity can be attributed to the poor allocation of spending.

Agriculture subsidy spending towards private inputs such as fertiliser increased by four times between 2001 and 2009, while public spending for irrigation remained flat.

Yet, research for Indonesia has shown that spending on public goods such as irrigation has a positive and significant impact on GDP per capita growth in agriculture, while public spending for fertiliser subsidies has a negative impact.

“Irrigation began in the Tigris-Euphrates region, and, when it failed, it also led to the first regional-scale abandonment of farming.”

Danny Dorling, author of “Population 10 Billion”

The government seems to have learned from past mistakes and is now betting heavily on extending and rejuvenating dams and the irrigation network.

During 2015-2019, they will spend more than USD 5.3 bn to develop 1 million ha of new irrigation networks and to rejuvenate 3 million ha of existing irrigation networks.

With a fully functioning and extended irrigation network, the farmers believe they could plant up to three times in a year which should increase their

Interesting fact about water scarcity from (Population 10 billion book):

Today we have water everywhere but an average child in an average affluent nation will consume 30-50 times more water in their lifetime compared with an average child in the majority world of poor nations.

It may well be water scarcity, not food, not minerals, not oil, that is our undoing.

income. This also would help the productivity yield as they could control the water supply.

Massive spending on agri infrastructure

Govt projects	2015F	2016F	2017F	2018F	2019F	Total
Dams						
Addition (unit)	13	8	9	11	8	49
Budget (Rp tn)	8.0	4.9	5.2	6.2	7.7	32.0
Rehabilitation (unit)	5	10	10	10	10	45
Budget (Rp tn)	0.0	0.1	0.1	0.3	0.2	0.7
Irrigation						
Addition (m ha)	0.12	0.22	0.22	0.22	0.22	1.00
Budget (Rp tn)	2.8	13.0	13.0	13.0	13.0	54.9
Rehabilitation (m ha)	0.25	0.68	0.68	0.68	0.68	2.97
Budget (Rp tn)	1.7	3.8	3.8	3.8	3.8	16.9
Total budget for agri infrastructure (Rp tn)	12.6	21.8	22.1	23.3	24.7	104.5

Source: National Development Agency

To ensure a more structural availability of water, the government will spend USD 2.3 bn to develop 49 dams during the 2015-2019 period.

These dams would store water during the rainy season and channel it during the dry season, making sure the irrigation network does not run dry.

At present, there is approximately 170,000 ha of irrigated land that runs dry due to a lack of water sources.

Thus, it can be expected that once the dams and irrigation networks are restored and expended, there will be less cropping failure due to drought.

In addition, the constant availability of water will enable the farmer to plant during the dry season, expanding the harvested area and income.



Brand new tertiary irrigation network we saw throughout Java
Source: Heyokha



The next wave?

When looking at some demographics you see that about half of the Indonesian population still lives in rural areas and that most of them are farmers.

In fact, the agricultural sector in Indonesia reportedly employs over a third of the national workforce while contributing approximately 17 percent of GDP. It is one of the pillars of the country's economy. Sadly a large number of farmers still live under subsistence conditions.

In Indonesia half of the population still live in rural areas and most of them are farmers

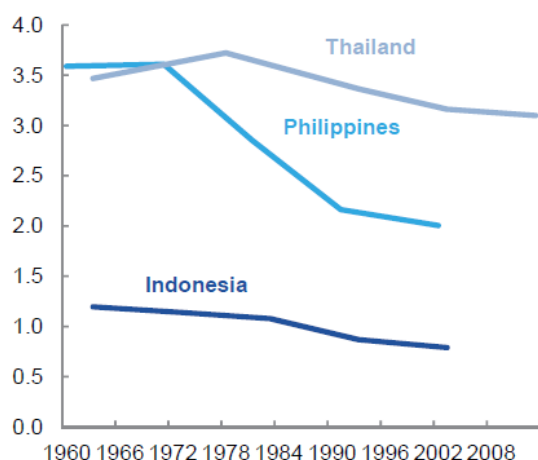
	2000	2005	2010	2011	2012	2013	2014
Population (mn)	213	227	242	245	248	251	254
Population growth (%)	1.3	1.2	1.3	1.3	1.3	1.3	1.3
Urban population (% of total)	42	46	50	51	51	52	53
Agriculture share of employment (%)	45	44	38	36	35	35	34

Source: World Bank, Indonesia Economic Quarterly

While Indonesia never had a comprehensive land reform distributing land to all farmers, we estimate the percentage of farming household that own land is still a respectable 60-70%.

Average farm size per hectares

In hectares



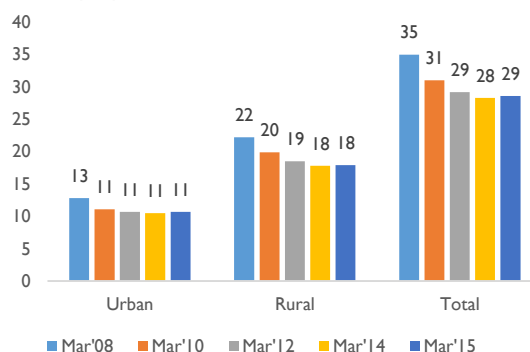
Note: Average farm size is total farm area in a locality divided by the number of farms. There farms include rice and other crops.

Source: National agricultural censuses

With an average farm size less than 1 hectare (South Korea average 0.5ha) and our naturally fertile soil, there is no reason that with the right reforms and implementation from the current administration, Indonesia would not be able to replicate the "gardening approach" success of the East Asia stories.

Indonesia's poor people 2008-2015

In million people



Note: Poor people dominate in the rural regions

Source: CBS, CastleAsia

Improving crop yields will really be a powerful force - if not the most powerful one - to lift farmers out of poverty and drive consumption.

We would say that this will be the lowest hanging fruit in the reform agenda of the current government.

While there is lot of scepticism towards the farming sector after decades of underinvestment, whatever we have seen so far, both policies and implementation are extremely encouraging.

The next wave of growth is coming.

Read the next section.

Government success validated on the ground

In the past three months, our Heyokha team travelled in the rural areas of central and East Java. We made these trips because we want to understand the country's agricultural reform as it really is. Witnessing the real farmer world from the ground up, both economically and socially.

We met with farmers, farmer associations, agriculture shop owners, government village officers, a seed company, and academics at the well-known Bogor Agricultural University (IPB).



Bogor Agricultural University (IPB)
Source: Heyokha

Many discussions were held over a delightful freshly-brewed coffee in village coffee shops, the farmers' farmlands and homes (the price of only IDR 2,000 or USD15 cents/cup makes Starbucks feel very expensive).

We always experienced a warm welcome everywhere. The villagers were super chatty and friendly. Even when they don't know us at all, they still wanted to go all out to feed us with whatever they are planting and growing.



IDR 2,000 (USD 0.15) coffee in a village coffee shop, an ice breaker that always works fine
Source: Heyokha

Getting our feet dirty

The fact that emerging market equity investing is still relatively a new thing makes EM investing trickier. Total market cap in 1980 was merely around USD100bn for EM equity, with limited free float.

Moreover, EM investment certainly has some distinctive features, including unique ways of scamming investors out of their money.

The latest P2P fraud in China is a good reminder of such a risk (nothing new here, as early as in the 1820's, the most notorious scam in EM investing history was carried out by Gregor MacGregor who issued a sovereign bond for a country that didn't even exist: Poyais).

We at Heyokha worked in stock brokerage and corporate finance before. While we found our previous experience valuable, we wanted more. We wanted freedom and the opportunity to see the real world from the ground up.

Embarking on a journey of discovery provides us with first-hand experiences and allows us to discover ideas that have not been discussed by the investment community.

We believe the most effective way to invest is by getting our feet dirty.



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Although we did not expect this, it turns out that all farmers are generally... happy. The happiness of the farmers is reflecting how the current government is improving their lives.

They literally, independent from each other, told us that there has been no president after Soeharto that cared as much about their wellbeing as Jokowi does. We were able to validate many more things, which we summarise below.



Happy farmers... and starting to spend
Source: Heyokha

Please read our interview series in the appendix section for all the details

Here is a summary of what we learned while on the road in Java

1. Literally ALL of the farmers that we spoke to are very happy with the current government as rural income improves. In their view, for the first time since the President Soeharto era, Indonesia is led by a President (and his cabinet member such as Pak Luhut Panjaitan, who has been pushing for irrigation infrastructure to be built or restored) who recognises the importance of farmers and farming.



A new dam in Gresik built during President SBY era, will be operational very soon. Local farmers are looking forward to it as they have seen salt water penetrating their paddy field. The new dams will take care of the problem.

Source: Heyokha

Farmers also spoke very highly about current minister of agriculture Amran Sulaiman. In their view, Amran is pragmatic, hard-working and supportive of farmers.



Interviewing farmers in a village coffee shop in East Java, they all love President Jokowi and his team

Source: Heyokha



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Farmers look to step up purchases of cattle, farming equipment, better seeds, smartphones, motorcycles and even cars.

2. The race towards mechanisation of the farms is finally taking off in Indonesia, although it is still about basic agricultural equipment: hand tractors and water pumps instead of self-driving trucks, drones or some robots doing harvesting and weeding.

Government aid in form of agricultural equipment manages to reach farmers, thanks to good execution and strong supervision by the farmer association, the government and ... the army.



Hand tractor equipment reaching farmers in Gresik, East Java. Not quite an AI robot but already a huge improvement over a water buffalo.

Source: Heyokha

3. The subsidised fertiliser and seeds for rice and corn have indeed reached farmers. Distribution of the free seeds has been, by and large, smooth. Abuse seems to be minimum especially compared to previous programs.

Thanks to a completely different procurement process, farmers can now vote for the brand they prefer through the farmer association. The fact that farmers can now choose their own brand result in significant extra sales for popular brands.



Good seeds, happy farmer (left), free corn seed aid packaging has been earmarked "not for sale" to prevent abuse (right)

Source: Heyokha

We learned that more farmers have access to subsidised fertiliser as compared to before when the system was badly abused by people who sold the free fertiliser at market prices to big plantation companies. Improvement is seen to come from strict monitoring by the farmer association, government and the army.

With the free corn seeds and subsidised fertilisers, the farmer should be able to save up to 30% of total planting cost. Due to improved yields, we estimate that the farmers could see their income increase up to three times the current level.

4. Army is welcomed by farmers.

With regard to army involvement, President Jokowi's policy has been underpinned by pragmatism. Farmers see this as refreshing. Soldiers are seen in the villages supervising the distribution of fertiliser/seeds and building irrigation networks.

Critics would quickly point out that this is reminiscent of President Soeharto's policies. Yet, in Indonesia people see the army as a more clean institution as the presidency itself! For the villagers, the expansion of the army's role in their communities is a change that is welcome. For one reason: the army gets things done.



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The army in the village, building irrigation networks. Reminiscent of President Soeharto's policies? Well, the farmers love the army for getting things done.
Source: Suaramerdeka.com

Survey on national Institution popularity

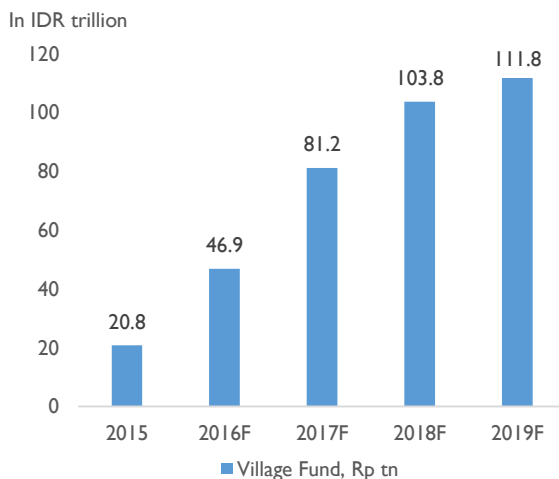
National institution	Clean	Dirty	Don't know
Corruption Eradication Commission	65.8	13.9	20.3
Army	64.9	10.8	24.3
Presidency	60.4	12.3	27.3
Supreme Court	41.1	29.3	29.6
People's Consultative Assembly	33.6	36.6	29.8
Attorney	32.2	40.2	27.6
Regional Representative Council	30.2	39.0	30.8
Police	27.9	46.3	25.8
House of Representative	22.7	50.7	26.6

Source: Indo Barometer survey, September 2015

5. Village funds going into irrigation. The village fund disbursements by the government have funded some labour intensive infrastructure projects such as the rebuilding of tertiary irrigation networks. Typically, a government representative and army oversee the spending of the project.

Following the law no 6/2014, Indonesian villages should receive direct transfers from the government. The total amount is to increase from IDR 20.8tn (USD1.5bn) last year to IDR 46.9tn (USD3.4bn) this year and is expected to more than double in 2018. The data suggests that the absorption rate was on the high side last year (above 75%).

Village fund in state budget



Source: Ministry of Finance

The state budget for village funds is to increase by fivefold in the coming three years. Most money will be spent on labour intensive infrastructure projects such as irrigation.

Feedback from the villagers on the construction works have been positive. Small improvements in the tertiary irrigation system will go a long way in increasing farm productivity.

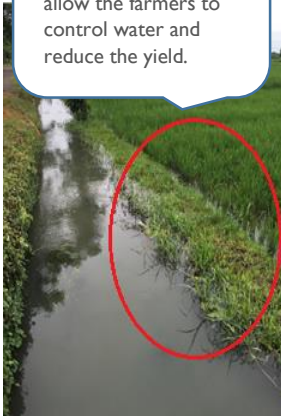
We learned from the farmers that even for rice, too much water is not good. Let alone the impact on other crops like corn, which requires less water. Improvement of the tertiary irrigation network allows farmers to control the use of water.

We were repeatedly informed that the share of functioning irrigation networks in the villages that we visited is merely 20-30%, lower than the 50% estimate that we read before making this trip.



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Old irrigation network that is not fixed yet. It does not allow the farmers to control water and reduce the yield.



Old irrigation network that has been rebuilt.



Tertiary irrigation
Source: Heyokha

6. Low hanging fruits everywhere. From dams, bridges, roads to storage facilities, the current state of infrastructure is so basic that even any marginal improvement will have a significant impact for farmers.



New bridge allows easier transport of grains, new irrigation (built during President Susilo era, recently completed) brings new hope for farmers.

Source: Heyokha

7. Farmers indicate that young people prefer the city life over farming. Every farmer that we asked conveyed the same message. This finding confirms various surveys that we read before. At the moment, about 12% of the country's 35 million farmers are younger than 35 years.

A recent survey by the Indonesian Institute of Sciences (LIPI) discovered that a staggering 90% of respondents aged between 15-29 years and living in three of Central Java's rice producing areas object to become farmers.

This is a missed chance as this younger, more adaptive and tech savvy generation could have the potential to revive the agricultural sector, which could be the key to achieve food security. Better life prospects for farmers is critically needed to get young people excited about farming again.



A farmer who saw the increasing opportunity in farming. He left his urban job to return to being a farmer

Source: Heyokha

8. Land conversion is still happening albeit at a small scale. During our trip, we noted that applying a strict ban of conversion of agricultural land is very difficult to implement in decentralised Indonesia (post regional autonomy law implementation in 2001).



Sighted few farm land converted to houses

Source: Heyokha

We still see farmland being converted for other uses here and there. The good news is that the scale of the conversion seems to be small. Moreover, we also learned that obtaining the license to build in this former farmland is very challenging.

9. Consumption picking up for most of the farmers that we met. The attention from President Jokowi administration touches their soul. Farmers' income is rising, supportive for companies who target farmers as their consumers.

Gudang Garam (GGRM IJ) may see stronger demand for their products, Astra (ASII IJ) may sell more motorcycles to farmers going forward, and a low-end retailer such as Ramayana (RALS IJ) and Alfamart (AMRT IJ) which have presence in the rural area may also benefit.



Life is beautiful (again), for farmers
Source: Heyokha

10. Hybrid rice seed wanted. Hybrid seeds can yield harvests that are up to 30% higher as compared to conventional seeds.



R&D: In search for hybrid rice seed, Indonesia needs it
Source: Heyokha

While hybrid corn seed has seen a good adoption rate (55%) in Indonesia, no seed company has ever managed to develop a hybrid rice seed that suits the Indonesian soil, planting and processing habits, and taste preference.

Farmers and agriculture shop owners that we met during this trip told us that they are still looking forward to a hybrid rice variety that works.

Investors should watch out for a company that manages to cultivate hybrid rice varieties that are suitable for Indonesia. Talking to researchers, we learned that a successful hybrid rice seed would be the Holy Grail in achieving President Jokowi's ambitious food security and self-sufficiency targets.

11. Farmers are happy with current domestic corn prices besides efforts to increase output, the government also aims to influence corn prices by controlling imports.

We learned that government logistic agency Bulog has now taken over control of corn imports by applying a quota system that could support domestic prices.

Companies that seek to import corn are to submit an import request to Bulog and the allowed quantity is somewhat restricted especially during the harvest season.

This step is taken to ensure that feed millers are absorbing local corn production, thus farmers will be motivated to plant more and to invest to enhance productivity.

Domestic vs. international landing price

Domestic corn price	IDR 3,500/kg
International corn price	US\$ 3.54/bushel
International corn price in IDR	IDR 1,950/kg
Logistic cost	US\$ 75/metric ton
Logistic cost in IDR	IDR 1,300/kg
International landing corn price	IDR 3,300/kg

Source: Animal feed company, Bloomberg, USDA

Due to incorrect harvest estimates the import quota has caused some undesired volatility for domestic corn prices, which recently spiked to IDR 7,000/kg from IDR 3,500. This triggered anger with chicken breeders, who consume about 80% of corn supply.



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We calculate that even without import quota, the current international landing price of corn is such that domestic corn prices are competitive and lucrative for farmers (assuming current USD/IDR rates and accounting for logistic costs).

Speaking to farmers and corn traders, they would already be happy to see stable domestic corn price at IDR 3,000. To put that into context, the domestic corn price was below IDR 2,000 a couple of years ago without agriculture reform support.

12. The era of digital agriculture is approaching... fast.

One of the farmers that we met (see interview section, Sugiarto from Demak, Central Java) is relatively tech savvy, using Facebook and chat apps to stay connected to the world. His Lenovo smartphone accompanies him most of the time, just like Jakarta's millennials.

The adoption of digital technology by younger farmers like Sugiarto (he is 39 this year) makes us wonder if the era of digital agriculture will arrive sooner.

Interesting to note that 65% of the Indonesian population has 3G coverage and smartphone penetration amounts to 40%. Still a lot of room to grow.



Smartphone seller in a small town in East Java
Source: Heyókha

It is worth noting that Bill Gates recently wrote: the process of innovation may take longer than many people expect, but it also tends to be more revolutionary than they imagine.

Quoting from the blog of Bill Gates:

"The main problem stems from the fact that agricultural markets, like banks, exist on a formal plane, whereas smallholders exist on an informal one. So farmers and markets cannot communicate effectively.

Smallholders don't know what the market will pay. They can't grow crops according to the market's specifications because they don't know the specifications.

They have no way to learn the farm-management practices that would let them double or even triple their yields. Instead, they grow mostly what they can eat or trade locally, the way they've always grown it.

As long as this information disconnect exists, there will be a related physical disconnect. The rails and roads that would take crops from the farm gate to the market don't exist, because the market doesn't want the crops the farmers are growing in the ways and volumes they're growing them.

So farmers are isolated, stuck with no money and no voice that the marketplace can hear.

But digital technology can act almost like a secret decoder ring that links the formal and informal



"Oh, I plow the fields, Greta takes care of the house, and young Johan, here, maintains the website."

Tech savvy youth driving technology adoption by farmers
Source: Jantoo



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Most direct play to agriculture era

While the global macro trend is highly deflationary, the fundamentals are getting better for the Indonesian seed company in which we invested.

Interesting fact

It is interesting to note that food security is a top priority of governments. In the background of fast falling forex reserves, we recently saw the Chinese SOE ChinaChem buying out the Swiss based agriculture company Syngenta. This is the largest overseas acquisition of a foreign company by the Chinese.

Our seed company registered 9M15 net income up over 100% YoY and we forecast full year to be up 80% YoY. The stock is trading at 11x 2016 earnings with 35% earnings CAGR until 2020 with a net cash balance sheet.

Our extensive homework in the fields helped us to form our view that we are in the beginning of a structural agriculture wave. A re-rating in our investment is imminent.

Growth is driven by an acceleration of hybrid corn seed adoption, expansion of farm land and a better mix of seed varieties that command higher prices and margins.

A major upside surprise could come from a successful launch of their new hybrid rice seed (introduction in 4Q2016)



Bisi stockpile to supply the seed subsidy program

Source: Heyokha

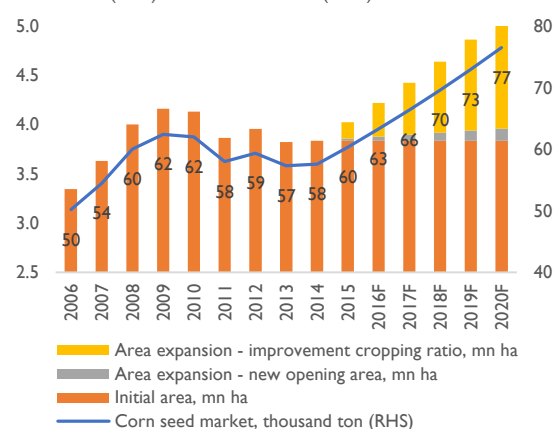
Our take on the expected growth of the underlying corn and rice seed markets is described below.

Corn seed market

In 2015 there was about 3.7 million ha of harvested area for corn. Each hectare requires some 15kg of seed, this translates into a total corn seed market of about 57,600 ton. This is equivalent to USD 159 mn in sales value (assuming a sales price of USD 2.85 per kg).

Corn harvested area and seed market

In million ha (LHS) and thousand ton (RHS)

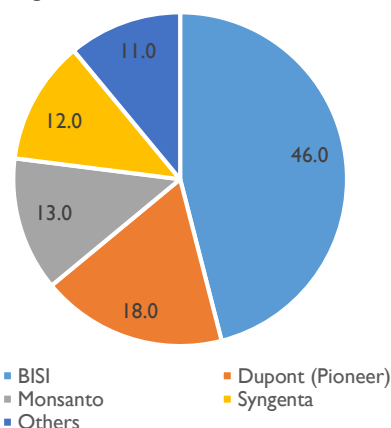


Source: National bureau statistics, Heyokha

Due to expanding farmland for corn and an increasing cropping ratio on the back of improved irrigation, we believe that corn harvested area will reach 5.1 million ha by 2020. This will boost the corn seed market to reach USD 265 mn by 2020, implying a growth rate of 11% in volume per annum.

Hybrid corn seed market share, 2015

In percentage

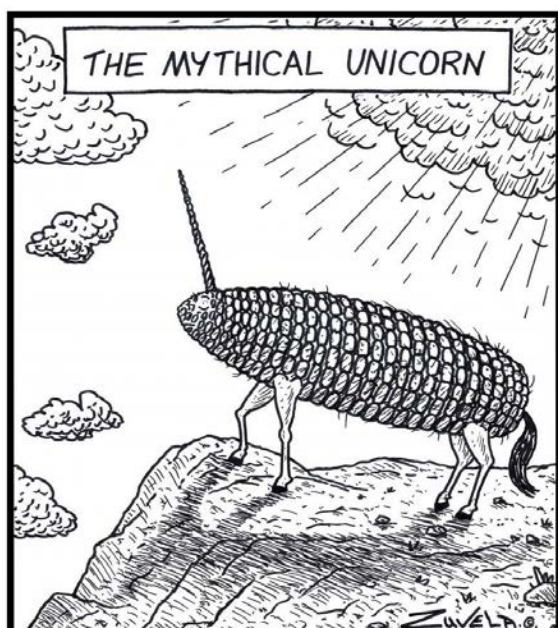


Note: Hybrid corn seed adoption in 2015 is about 55%

Source: Company data



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Perhaps the true unicorn investment in Indonesia is not located in the tech space.

Source: Jantoo

In 2016, the Government plans to increase the hybrid corn seed subsidy by 50% relative to last year. They will distribute 22,500 tons of free corn seed to the farmers that can be used to plant corn on 1.5 million ha area.

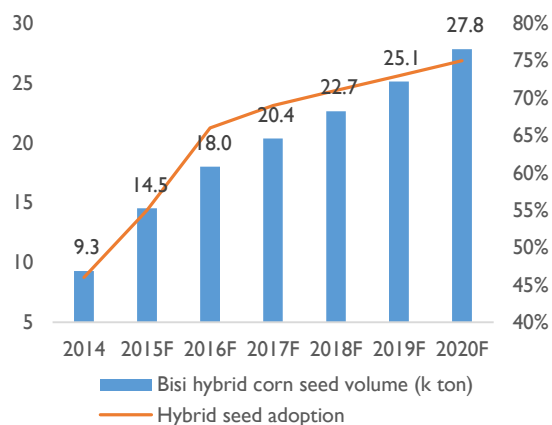
Despite the large jump, it will only be enough to cover about 40% of total corn harvested area. Still a lot of room for growth from the free market.

Why do the farmers want to plant more corn?

- Based on IDR 2,700 kg price (conservative, still well below current domestic price), switching to corn hybrids farmers can make up to 2-3 times more income.
- We see upside to farmers' income from other reform support such as irrigation, fertiliser and machinery etc.
- Despite higher profitability for horticulture, the risk is also significantly higher due to the necessary speed needed to get product to end consumer. But with higher corn prices, the risk/reward is now more favourable to plant corn instead of horticulture because ease of storage for corn.
- Unlike corn, there is no free horticulture seed.

Bisi corn seed sales and hybrid adoption rate

In thousand ton (LHS) and % (RHS)



Source: Company data, Heyokha

Hybrid seed vs. conventional economics

Planting cost per hectare	Hybrid seeds (Bisi 18)		Conventional seeds	
	Needed	Rp (k)	Needed	Rp (k)
Seeds	15kg	975	20kg	300
Fertilized	500kg	1,200	300kg	600
Grain processing		850		850
Seeding and planting	30 days	1,300	30 days	1,300
Fertilizer & Irrigation	88 days	1,200	88 days	1,200
Harvesting & transport	30 days	1,000	30 days	1,000
Production cost		6,525		5,250
Production cost per kg		816		1,400
Yield per ha		8,000		3,750
Price per kg		2,700		2,700
Revenue		21,600		10,125
Margin		15,075		4,875
Gain		10,200		

Source: Company data, Heyokha



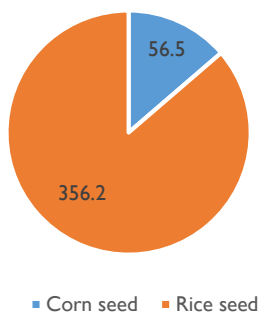
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Rice seed market

The market for rice seed is even more interesting given its size. There is about 13.8 mn ha harvested area for rice, which translates into a total rice seed market of 345,000 tons. With more farmland expansion and improvements to irrigation networks, we expect the rice seed market to grow to 389,000 ton by 2020.

Seed market in 2015

In thousand ton



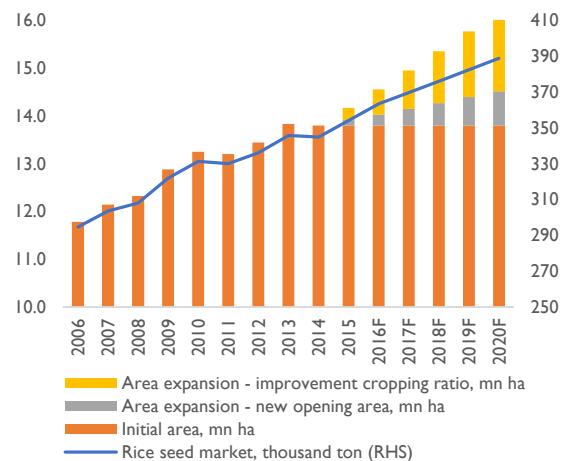
Source: Company data, Heyokha

To gauge the potential upside of a successful introduction of a hybrid rice seed variety, we make some calculations based on indicative assumptions.

Assuming a conservative 10% hybrid seed adoption rate by 2020, we arrive at a market size of 24,300 tons for hybrid rice seed. This would roughly reflect a market of USD 97 mn.

Paddy harvested area and seed market

In million ha (LHS) and thousand ton (RHS)



Source: Company data, Heyokha

It is interesting to note that China, the largest rice producing country in the world, became the first country that successfully launched the rice hybrid in 1979. Since then, the adoption has risen to 50%.

A successful hybrid rice could be a game changer for Indonesia's food security plans.

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-The End-

We must have met about 200 farmers during our trip to rural Java. Below we feature some of the most interesting meetings.

Bapak Sugiarto, Reverse Migration and Digital Agriculture

Farmer and head of a farmer association, Kembangarum village, Mranggen – Demak, Central Java

In the past decades, the urbanization story has been one of the key pillars of Indonesia's economic growth and productivity gains. We haven't yet read anecdotal reports of migrant workers in big Indonesian cities doing reverse migration, even with some layoffs during current macro slowdown.

This makes the story of Sugiarto's a very interesting one.

Leaving his home village before to work as an urban salesman for seven years, he decided to return to his home village to pursue farming. He is a believer that if he does farming wholeheartedly, he can make a difference and prosper.

Prosper. Yes, indeed, that's the word he used during the interview. And fortune happens to be on his side. Since president Jokowi came into power, the government's attention has diverted into farming, which has helped Sugiarto reach his objective.

As the head of the local farmer association Tani Makmur (means prosperous farmer), he witnessed government help in the form of free hybrid corn seeds, subsidized fertilizer, free rice seed, access to hand tractor and water pump. The 180 members of his farmer association join to use tractors to distribute the seeds and fertilizer amongst them.

Evidently, the privilege enjoyed by the association members has made the association more appealing. Sugiarto has observed a lot more interest from the farmers to join the association. (Estimated about 50% farmers in his neighbourhood are currently a fellow member of the association).

This renewed interest to join the association is clearly positive for the long term outlook of the country's farming productivity as information and knowledge can be distributed more effectively through the association.

Already, the rejuvenated farmer association under Sugiarto's leadership has acquired

hunger to learn, traveling the country to learn from best practices elsewhere.

Sugiarto also saw how the army playing an active role in the agricultural program. He noticed that soldiers have helped to monitor the distribution of seeds and fertilizer, preventing abuse. Soldiers even took part in supervising irrigation construction. In his eyes, army involvement is all positive.

The villagers love the army since they know how to get things done. Better irrigation access is the key to improved productivity, in his view.

He thinks most farmers in his village own land, with average size of 0.5 ha. In his case, he is renting the land and so far the rental has not gone up despite higher crop prices. Benefitting from his previous experience living in a big city, Sugiarto is also tech savvy.

His Lenovo smartphone accompanies him most of the time. He uses Facebook and BlackBerry Messenger (BBM) to stay connected to the world, and he is proud of that.



Heyokha research team meeting Pak Sugiarto
Source: Heyokha

Ibu Untari, The Power of Positive Thinking

Farmer, businesswoman, and head of a farmer association, Bojonegoro, East Java.

One notable meeting was with Ibu Untari from Bojonegoro regency. Our arrival was without any prior notice but she welcomed us wholeheartedly. She is a farmer and a leader of her village farmer association (she is the head of the farmer union there, rare occasion in the male-centric Java), which was inherited from her late father. To top it up, Untari also owns a snack company.

Living in a flood prone area, she is amazingly resilient and grateful. When there is too much water (that's her term, we call it flood), she is grateful that the water drives mice away, leading into a better harvest in the following season.

When there is not much water (we call it draught), Ibu Untari is equally grateful because the regency has easier access to river so they are better off than most of their fellow farmers in East Java. And the price of rice and corn tend to be high under this circumstances.

Untari expressed that she and her farmer neighbors are very happy with the current government. In her view, since



Ibu Untari, the power of positive thinking

Source: Heyokha

President Suharto era, Indonesia is once again led by a President who recognizes the importance of farmers and farming. She also spoke very highly about current agri minister Amran Sulaiman who is pragmatic and follows his instinct (unlike his political appointee predecessors, Amran indeed has a farming background) in supporting of farmers.

Her farming association received plenty of help from the government in the form of tractors and water pumps. As for the seed aid from the government, she did not get any allocation in 2015 but hopeful her farmer association will receive seed help this year.



Water pump for farming in Bojonegoro, East Java, Government distributes it to farmer association

Source: Heyokha

Bapak Supardi, Best Times For Him

Farmer, rice and corn merchant, Blitar, East Java (NU) A farmer and a trader in Putih Village, Gampengrejo – Kediri, East Java

Pak Supardi is a senior farmer and corn trader. He witnessed that the corn price went through the roof in the past two months, but didn't have the inventory to participate fully in the upswing. He is certainly hopeful that corn price stays high when the harvest time arrives in about 40 days (from the time of this interview in early Feb 2016).

More than 50% of the farmers in his village own land, with the average size of about 0.5 ha. For those who rent the land from the village landlord, the rental – fortunately - has not gone up despite higher crop prices.

Experience with hybrid corn has been consistently pleasant but the same can't be said about hybrid rice seeds. He is hopeful that seed company will be able to find a hybrid rice seed that matches local taste and soil.

Supardi is a member of a local farmer association (about 40 members in total) and witnessed the association receiving subsidized fertilizer and seeds from the government. The association also received hand tractors and water pumps, which are shared amongst association members.

Irrigation is another area that the government is focusing on in his village. Army members are seen helping out with rebuilding the irrigation infrastructure.

Supardi views the current situation as the best he can remember. He has doubled the income thanks to high crop price and



Rice harvest time in East Java, December 2015

Source: Heyokha

government support to farmers. That will help to make farming attractive again.



Heyokha research interviewing Pak Supardi

Source: Heyokha

government support and invested extra income to buy a cow (as a form of saving).

Overall, he and his fellow 40 members of the farmer union in his village love the current government. They think this is the first government who cares about their well-being since the era of President Suharto.

As a senior farmer, Supardi is hopeful that young generation will be willing to take up farming as a career choice again (he thinks the young can help to bolster productivity since they are much more technology savvy). As such, he would like to see continuous

Bapak Sutikno, The Big Heart

A farmer and head of farmer association, Yemean Village, Gampengrejo – Kediri, East Java

Sutikno, like all the villagers that we met during our trip, is so warm and friendly. Yes, warm and welcome again. Seems like every farmers we met are. Not sure if it's because they are making more money these days or the more laid back culture and the beautiful setting makes them calmer and good natured. They would go all out to feed the visitors. And we just were not able to resist all the great fresh food in front of us.

Sutikno's wife cooked fresh quail eggs from the family's farm. Needless to say, we shamelessly ate all off the eggs, despite our body sent a message that we ought to stop eating this high cholesterol food.

Upon finding out that one of our team member comes from Hong Kong, Sutikno mentioned that many young people from his village currently live and work in Hong Kong. And that has resulted in difficulties for him and his fellow farmers to find bodies to work in the farm. Young people don't see farming as an attractive career option. For this reason, Sutikno is very thankful for the government help in providing tractors, hand sprayers, and water pumps for his village.

In addition to tractor and water pump, his village has also witnessed help in the form of subsidized fertilizer and free seeds last year. Sutikno is of the view that his village may not get allocation for rice and corn seeds this year but he understands that other villages have not enjoyed seed subsidy last year. As such, it is only fair that next door village should get the free seeds this year.



Hand tractor replacing kerbau (water buffalo) plowing the rice field

Source: Heyokha

Also, unlike other head of farmer association that we met, Sutikno takes a view that seed, fertilizer, and farm equipment aid should not be exclusive for the member of the association. He sees the association merely as an organizer for the aid distribution. Sutikno is a man with a big heart, his fellow villagers are lucky to have him around.

He also told us that tertiary irrigation infrastructure in his village has finally improved, thanks to the government village fund. He felt that the money has been spent on the projects wisely, as irrigation makes big difference. Better irrigation will help to control the water supply. Actual productivity improvement will be huge, given how bad the damage is (we were informed that function-

ing irrigation network in the villages that we visited is merely 20-30%, lower than 50% estimate that we read before making this trip).

On the subject of military personnel supporting agriculture policy to boost output, he also confirmed the army contribution. He sees this as a big positive. The military helps to oversee the seed, fertilizer, and agriculture equipment distribution. The soldiers are also very approachable, they would arrive and help out willingly upon request.

Like most farmers that we spoke to, Sutikno is looking forward to the availability of hybrid rice seed varieties. That will be a game changer in term of farmer's income, in his view.



Pak Sutikno, the big heart

Source: Heyokha

Bapak Sutrisno, Reaping Rewards From Reforms

An agri shop owner, crop trader in Wonojoyo Village, Gurah – Kediri, East Java

Sutrisno started his agriculture shop back in 2005. Along with the shop, he also owns a small paddy field. Later in 2008, he stepped up his game to become a rice and corn trader as well. He feels that doing all three activities (farmer, agri shop, and trader) allows him to be more well-rounded, and access information better.



Sutrisno, a proud owner of an agri shop in Kediri, East Java

Source: Heyokha

He claimed, in his 10+ year career in agree, today is the best time ever for farmers and for someone like himself.

It is true that the availability of free seed and subsidized fertilizer has negatively affected

"Today is the best time ever for farmers"

his seed and fertilizer sales. But overall, his business is better than ever.

Government program on agriculture has lead into elevated farming activities, which in turns fuel demand for his agri shop products. He prefers to focus on bigger picture.



A brand new bridge, now easier access for farmers to transport their harvest

Source: Heyokha

Sutrisno mentioned that irrigation in his village is already as good as it could be. Improvement will be marginal.

He also noted that the army is very much involved in overseeing seed and fertilizer aid distribution. The army in his village also makes sure that the government agriculture extension officers (currently under regional government, part of the changes since regional autonomy implementation in 2001) work hard to improve the knowledge of the farmers.

Sutrisno likes a brand called BISI for corn and rice seeds. For corn seed, he was previously distributing Monsanto brand but now prefers to sell BISI brands. He said while Monsanto also have good products, he finds it more difficult to communicate with Monsanto sales people. Usually the sales people of Monsanto have cultural barrier with his farmer customers.

Sutrisno is hopeful that the seed companies will be able to invent a hybrid rice seed variant that suits local taste that will help to improve rice farm productivity.

He said that BISI came up with a hybrid rice seed a number of years ago but unfortunately the taste, texture, and water content didn't match the local taste perfectly so he did not see much on irrigation development.



INTERVIEW SERIES

Planting cost per hectare	Hybrid seeds		Ciherang		Conventional	
	Needed	Rp (k)	Needed	Rp (k)	Needed	Rp (k)
Seeds	15kg	900	25kg	350	25kg	200
Fertilized	755kg	1,750	755kg	1,750	620kg	1,437
Insecticide		500		500		400
Land processing		850		850		850
Seeding and planting	35 working days	1,000	35 working days	1,000	35 working days	1,000
Fertilizer & Irrigation	75 working days	1,300	75 working days	1,300	75 working days	1,300
Harvesting & transport	50 working days	2,000	50 working days	2,000	50 working days	2,000
Production cost		8,300		7,750		7,187
Production cost per kg		1,022		1,192		1,307
Yield per ha, kg		8,125		6,500		5,500
Price per kg		4,400		4,400		4,400
Revenue		35,750		28,600		24,200
Margin		27,450		20,850		17,013
Gain over Ciherang		6,600				
Gain over Convetional		10,437				

Rice hybrid, Ciherang varieties, and conventional economics
Source: Heyokha

He also saw armies overseeing the subsidy distribution to ensure it arrives on the right hand. Since 2005, when he starts his agri shop, he thinks this is one of the best years for him and farmers in his village.

On more prosperous farmers, Sutrisno mentioned that other than cash and cattle, many of his farmer customers plan to buy motorcycle. Also, good cigarette brand like Gudang Garam Surya is always an affordable luxury. Expect motorcycle and Gudang Garam (GGRM IJ) sales to be supported by rising farmer income.



Ibu Arum Tani, Down But Happy

Agri-shop owner, Kembangarum Village, Mranggen, Demak - Central Java



The agri-shop bears her name "Arum Tani"

From her name, Arum Tani which means the fragrance of agriculture, we can tell that she is destined to be in the agriculture industry. Ibu Arum Tani together with her husband started this agri-shop in 2005 and then successfully evolved the store as one of the largest in her village.

She still warmly welcomes us despite being busy serving the customers.

With a lot of support from the government such as free seeds & subsidized fertiliser, the farmers tend to spend less in the agri-shop. Bu Arum Tani complained how her sales declined significantly, especially for seed products due to the seed subsidy program.

Despite the fall in seed sales, she sees stronger sales for other items such as pesticide. Yet, this could not offset the loss in seed sales. She can tell that the farmers are generally happier because they can save more money due to the subsidy and earn more through higher crop prices. She also said that it is much more enjoyable to serve the farmers when they are happy as compared to when they are not.



Her sales in seed products declined significantly. This implies that the seed subsidy program is being well-executed.

Pak Matori, Cattle - Better Store of Value than Paper Money

Farmer and breeder, Putih Village, Gampengrejo, Kediri - East Java

We stopped by to enjoy the farm land view around Kediri and then, suddenly Pak Matori and his pack was passing by us. Pak Matori is a farmer and also a cattle breeder. When the sowing season is done, he takes care of his cattle while waiting for his paddy to be matured.

Pak Matori is very happy with the current condition now and describes this as one of the best times for farmers. Normally, he can only afford to buy 17 goats but now he bought 34 goats, meaning his “savings” have doubled. The selling price of a goat price is roughly about USD 150, so he will earn USD 5,100 in no time.



From 17 goats to 34 goats
Source: Heyokha

