2008-2018

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AMITY INSIGHT

HUNGRY PLANET REVISITED:

Feeding the World: Threats and Opportunities

2 ZERO HUNGER

PROFIT WITH PRINCIPLES

CONTENTS

INTRODUCTION

By Neville White
Head of SRI Policy & Research, EdenTree Investment Management Limited

> **Imagine all the food mankind has produced over the past 8,000 years. Now consider that we need to produce that same amount again – but in just the next 40 years if we are to feed our growing and hungry world.**
>
> – Paul Polman, Chief Executive Officer, Unilever plc

This is our 31st Amity Insight and a sister publication to Thirsty Planet Revisited, which came out in 2017. Since 2008, when we published our first Insight on cocoa, we have striven to be thought leaders in socially responsible investment, providing clients with topical and incisive research on the most important ESG issues. This is all part of our 'Profit with Principles' commitment.

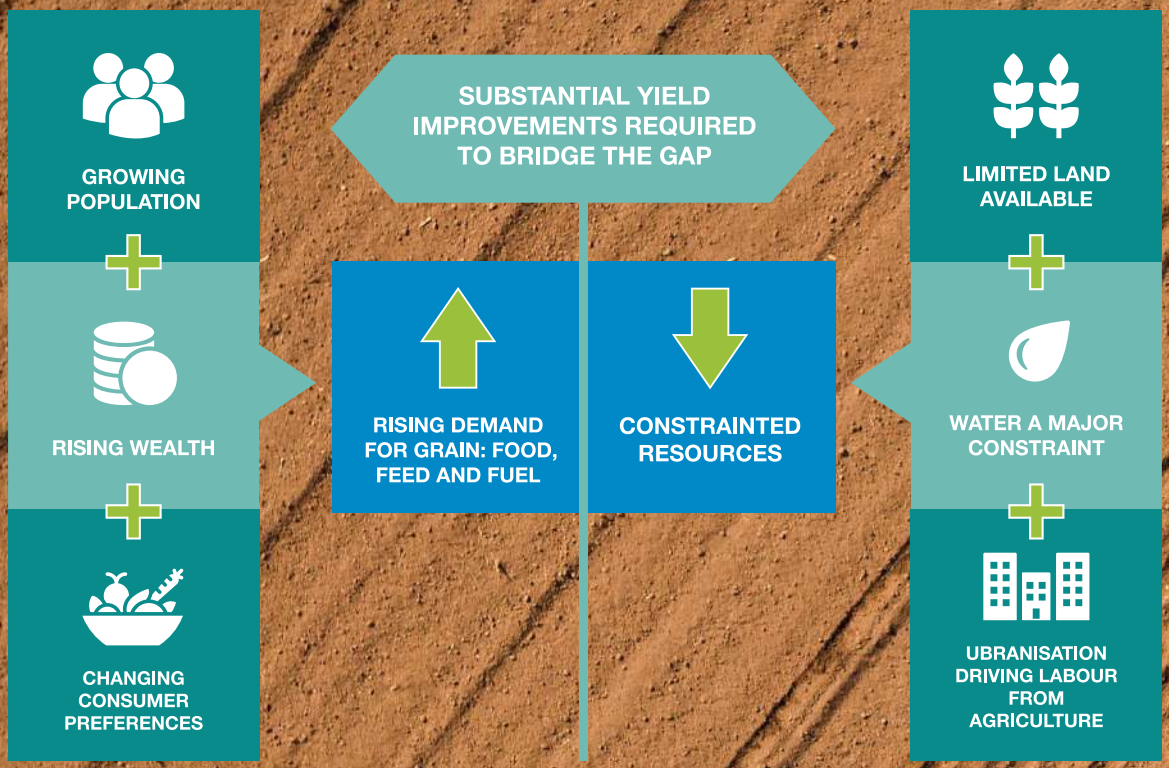
Back in 2012, when Hungry Planet was first published, we observed how rising population 'is going to place unprecedented strain on the global food supply chain, impacting the lives of billions of people'. We see no reason to change that bleak outlook, however in Hungry Planet Revisited, we explore some new drivers such as technology and artificial intelligence which hold out the prospect of improving production. We also look at the expected impact of climate change on food, and the significant contribution that can be made by reducing food waste.

As usual we look at the investment value chain via five investible themes. We believe one solution to the acute supply-demand imbalance is greater access to mechanisation, and we feature this as a case study.

The World Economic Forum's 2018 Global Risk Landscape places extreme weather events as the number one global risk in terms of likelihood and number two in terms of impact. As we show, estimates of cropland reduction vary from 10-50% as a result of extreme weather events. There is now thought to be a one in 20 chance per decade that heat, drought and flood will cause a simultaneous failure in maize production in both China and the US; the world's two main sources. This would result in widespread famine and population displacement. The challenges are high, but we point to real solutions where there are opportunities for the responsible investor.

As ever we hope you enjoy reading this Insight, and welcome your feedback.

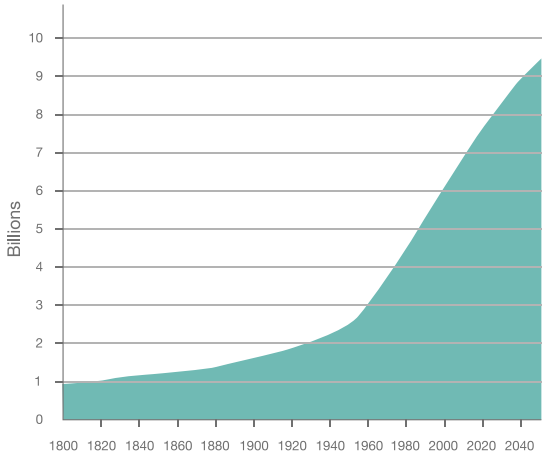
FEEDING THE WORLD: THE CHALLENGE



DEMAND: A MALTHUSIAN CHECK

Thomas Malthus (1766-1834) observed that an increase in food production improved the wellbeing of the population, but that this in turn led to population growth; in this worldview (or the Malthusian Trap) food production is always trying to keep up with the needs of an expanding population. Famously, Malthus observed that whilst population grows geometrically, food production can only keep up arithmetically. The issues raised in Hungry Planet Revisited looks at how to break the classic Malthusian Trap.

WORLD POPULATION

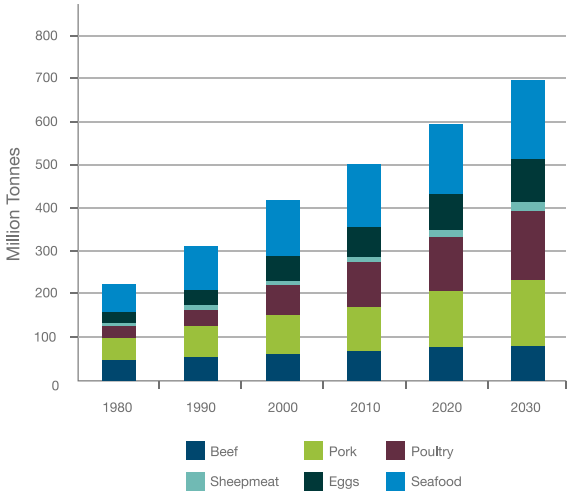


Source: www.futuretimeline.net

> **The power of population is indefinitely greater than the power in the earth to produce subsistence for man.**
>
> – Rev. Thomas Malthus

In 1900, world population was just 1.9 billion – in a century this has increased to 7.6 billion, and is estimated to rise to 9.3 billion by 2050. This growth is equivalent to a 'new' China or India. Owing to longer lifespans, reduced child mortality, reduction in global poverty and rising incomes, population is increasing by 1.1% a year; the majority in the developing world. Economic growth has seen greater numbers lifted out of absolute poverty, with an increasing proportion of humanity now having choice rather than just facing subsistence and survival. Rising wealth always drives increased food consumption, and particularly enriched protein diets. In just 60 years, global protein consumption has grown by 450%. Protein demand drives the need for increased animal feed and land committed to grain production.

GLOBAL PROTEIN DEMAND 1980 – 2030



Source: www.themeatsite.com

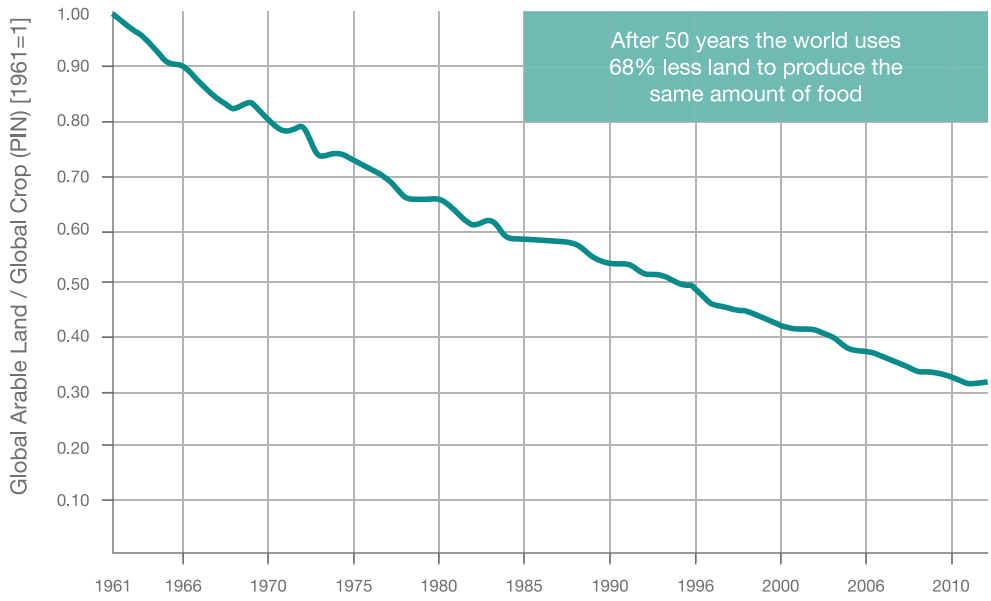
China's middle class will have a population the size of Europe in less than 20 years

SUPPLY: LAND; WATER; PEOPLE

Land

Around 38% of the Earth's total land surface is used for agriculture, however land given over to food production has declined over the past two decades. Growing urbanisation will reduce the availability of arable land still further. Each year it is estimated that around 10 million hectares are lost to urban development and erosion, and food security is at risk from economic alternatives; 40% of the US corn crop now goes to produce more lucrative bio-fuels.

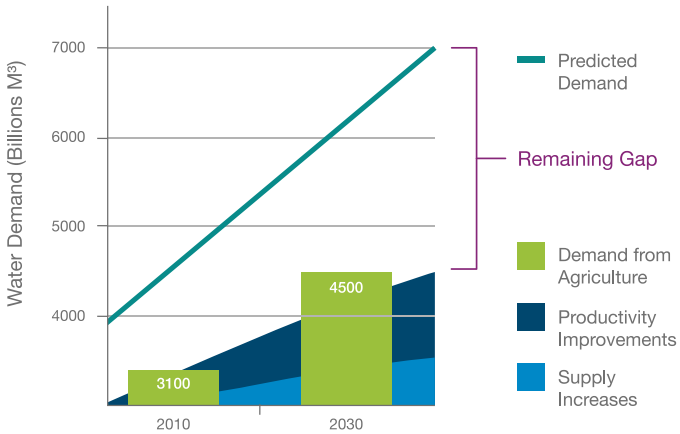
The story of modern farming has sought to drive efficiencies from fewer hectares – but this is now tightening.



Source: Food and Agriculture Organisation (UN)

Water

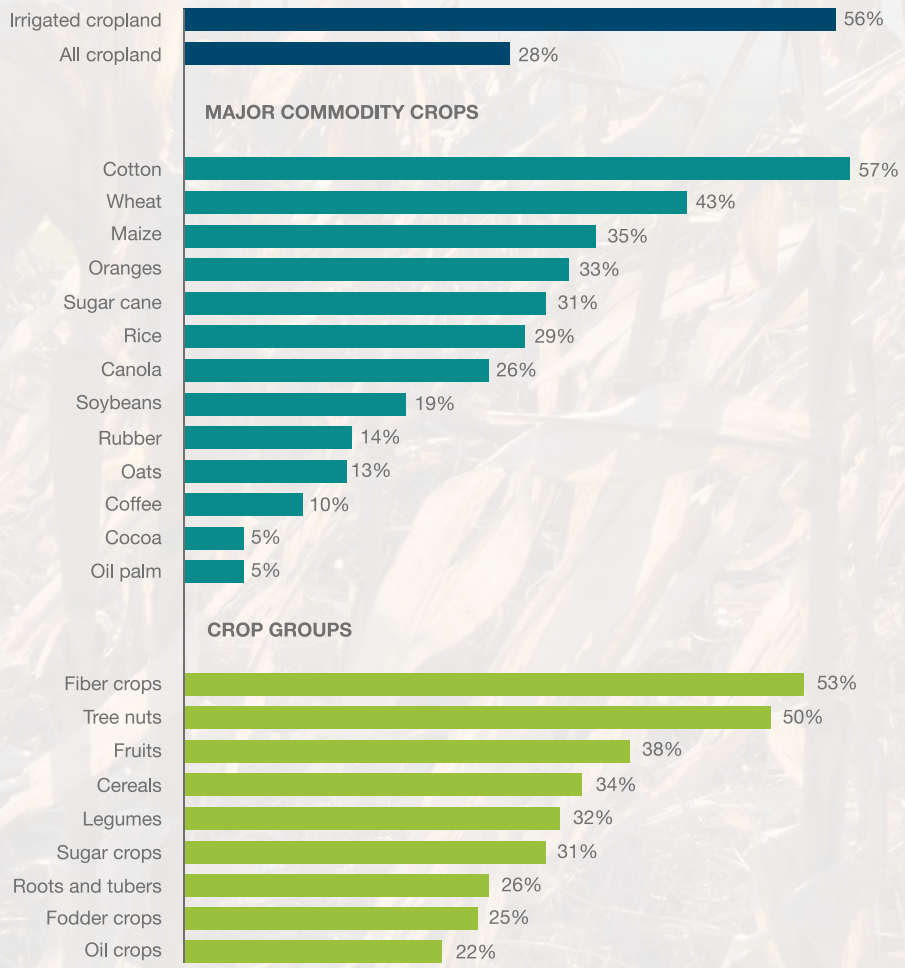
The acute issues surrounding water stress were set out in our Amity Insight, Thirsty Planet Revisited. Agriculture is the greatest user of water, consuming 3.1 trillion M³ a year, accounting for nearly 70% of all abstraction; but this could be increasingly under pressure. Irrigation has been among the key drivers to improve crop yields, and whilst some countries have abundant water – Russia, Brazil - the ability to irrigate in developing countries may be at risk where rainfall is low.



Source: farmingfirst.org

Nearly all essential agricultural production is facing high or extremely high stress, including over half of all irrigated cropland (56%), cotton, (57%) and wheat (43%).

PORTION OF GLOBAL AGRICULTURAL PRODUCTION UNDER HIGH OR EXTREMELY HIGH STRESS



Source: Analysis of global crop production overlaid on Aqueduct baseline water stress. Data from Gassert et al, 2013, Monfreda et al. 2008, Remankutty et al. Sievert et al. 2013. See WRI.org/Aqueduct

People

Farming is one of the biggest and most critical economic sectors in the world, but unlike in the 14th century when as much as 75% of all labour was committed to husbandry, modern 'industrial' farming has had to perform with fewer and fewer participants. Farming is estimated to 'employ' as much as 26% of the global workforce, but much of this is family scale, artisanal production. The escalation of urbanisation is having a dramatic impact on agriculture by taking people out of farming and into middle-class urban employment. The need to feed 9 billion people with a diminishing workforce will require a scale step in mechanisation and technology. Whilst nearly 90% of the world's farms are small at under 2.2 hectares, these only hold 24.7% of the total land dedicated to agriculture. Overall the number of farmers in the world appears to have peaked, and is now falling.

Mechanisation and improved techniques hold out the hope of overall improving crop yields. Since 1900, US agricultural employment has fallen from 40% to 2% of the workforce, but in the same time farm production has more than doubled. Could this perhaps be the model for the developing world through to 2050?

FOOD AND THE SUSTAINABLE DEVELOPMENT GOALS

SUSTAINABLE DEVELOPMENT GOALS

SDG2 'Zero Hunger' is the core Sustainable Development Goal linked to food and is aimed at ending hunger and achieving food security.

The key targets of the Goal by 2030 include:

- End hunger and ensure universal access to safe, nutritious and sufficient food
- End all forms of malnutrition
- Double the agricultural productivity and incomes of small scale farmers
- Ensure sustainable food production, systems and resilient practices
- Maintain the genetic diversity of seeds, cultivated plants and farmed animals
- Adopt measures to ensure the proper functioning of food commodity markets. Timely access to market information including on food reserves and eliminate price volatility

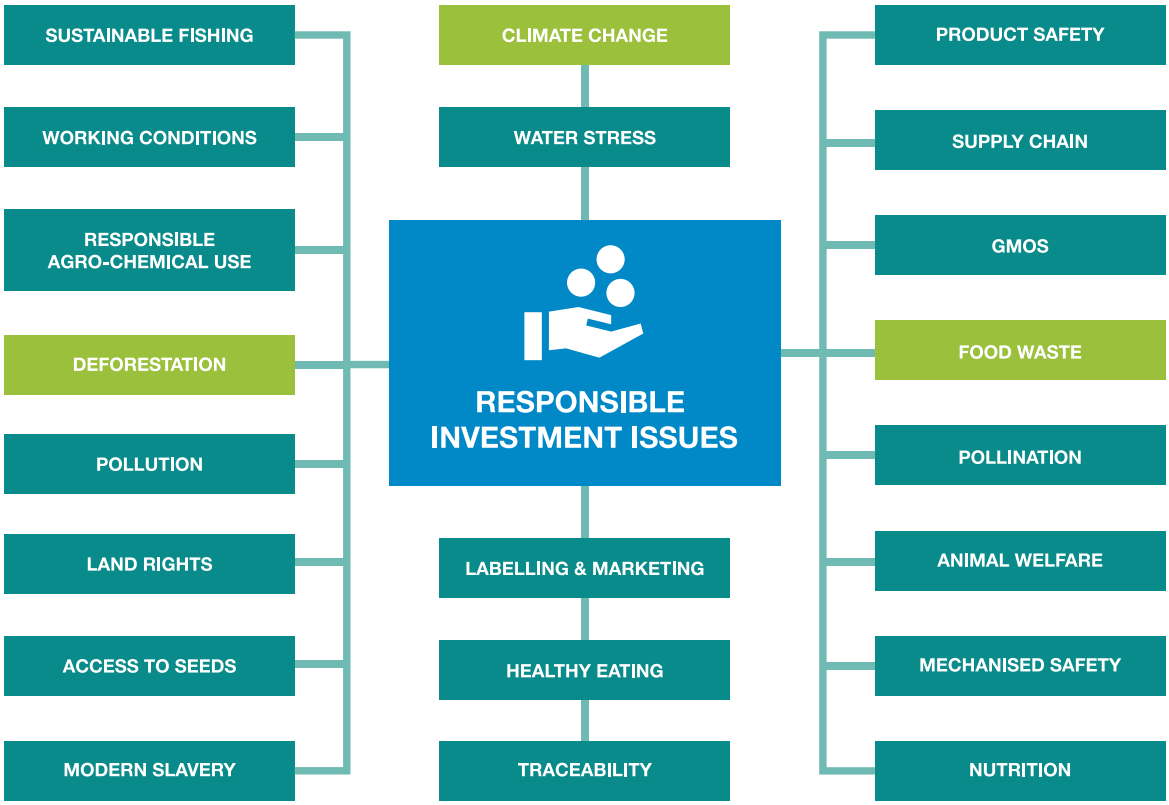
The issues covered in this Insight are core to delivering on SDG2. Two other Goals have tangential association with food production and consumption.

- SDG 3 – Good Heath & Wellbeing
- SDG 12 – Responsible Consumption and Production

Good Health & Wellbeing correlates directly with our Positive Pillar 'Health & Wellbeing,' and is focused on healthy lives, whilst Responsible Consumption & Production correlates to our Environmental Management Pillar. SDG12 considers the sustainable and efficient use of resources, and has a target to halve per capita global food waste at retail, consumer and supply chain level.

MAPPING THE ISSUES FOR RESPONSIBLE INVESTORS

The issues relevant to responsible investment in thinking about food supply are broad and deep; in this Insight we concentrate on three: climate change, food waste and deforestation. Clients are also encouraged to consult our SRI Expert Briefings on Genetically Modified Organisms (GMOs) and Farm Animal Welfare.



Climate Change

Agriculture both contributes to climate change and is affected by it.

Food production, harvesting, processing and transportation all contribute to Greenhouse Gas (GHG) emissions. Methane, in particular, is produced by livestock via ruminant fermentation. Nitrous Oxide emissions are a bi-product of organic and mineral nitrous fertilisers. Agriculture contributes around 10% of the EU GHG inventory, and therefore is not insignificant; however this has fallen from nearly 25% of all GHG emissions in 1990 (base line year). EU reductions have been achieved by overall declining numbers of livestock, smarter application of fertilisers and improved manure management.

However, globally the contribution agriculture makes to climate change is growing, driven by increased demand as we have seen. Around 15% of global GHG emissions arise from agricultural production, and this rises to 24% if forestry and other land use is included.

The Impact of cow burps

A typical cow can release up to 500 litres of methane gas into the atmosphere every day! In total 'cow burps' account for 3.7% of all GHG emissions in the form of concentrated methane gas. Reducing the amount of ruminant methane is crucial to mitigate the long-term effects of climate change. Adding calcium nitrate to feedstock can, for instance, reduce fermentation and the production of gas.

Food crops are sensitive to changes in soil temperature and moisture. Estimates vary, but the impact of catastrophic climate change could reduce cropland from between 10-50%.

The world's staple crops – rice, wheat, corn, soy and potatoes – are all vulnerable to fairly small changes in climate. A 2° scenario projects rainfall to be 10% lower in North America, thereby decreasing soil moisture and crop resilience. Production is also susceptible to extreme weather shocks such as flood and drought, which the World Economic Forum regards as highly likely.

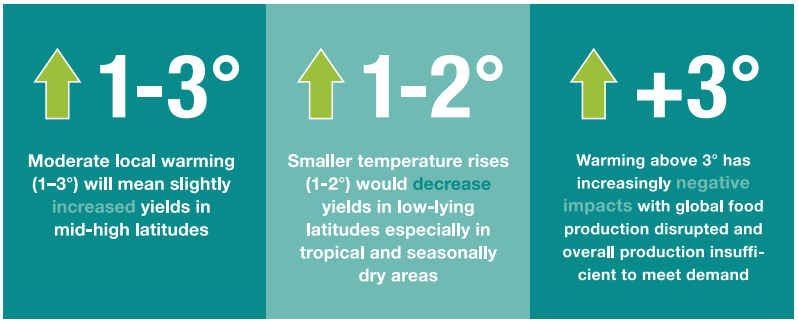
It is sobering to be reminded that 75% of the world's food comes from just 12 vegetable and five animal sources. There is now thought to be a 1/20 chance per decade that heat, drought, and flood will simultaneously cause failure in maize production in both the US and China, plunging the world into widespread famine and displacement.

Rising sea acidification, another impact of climate change, is putting the world's fish stocks at risk.

Climate change is probably the most significant issue for responsible investors when thinking of the issues covered in Hungry Planet Revisited.

- Heat waves are likely to lead to reduced yields
- Increased precipitation leads to crop damage and soil erosion
- Increasing drought results in desertification and crop failure
- Extreme sea levels and acidification impacts aquaculture

'Smart' agriculture can contribute towards mitigating the worst effects of climate change



Food Waste

According to the UN, up to 33% or 1.3 billion tonnes of global food production is wasted annually. This equates to 30% of available agricultural land used to grow or farm our food. With population set to rise to 9 billion people, waste on this scale cannot continue. The scale of food waste is particularly alarming given the supply-demand gap that suggests production will need to increase by 60%. It is perhaps not surprising that most food is wasted in developed markets such as the US, where it is estimated up to 40% of the entire food supply ends up wasted, and in the UK where 7m tonnes is wasted.

Solving food waste would go far in supporting the unmet needs of nearly 800m people

GLOBAL QUANTITATIVE FOOD LOSSES AND WASTE FOR EACH COMMODITY GROUP PER YEAR:

30%	**CEREALS** In industrialised countries, consumers throw away 286 million tonnes of cereal products
20%	**DAIRY PRODUCTS** In Europe alone, 29 million tonnes of dairy products are lost or wasted every year
35%	**FISH & SEAFOOD** 8% of fish caught globally is thrown back into the sea. In most cases they are dead, dying or badly damaged
45%	**FRUITS & VEGETABLES** Almost half of all the fruits and vegetables produced are wasted.
20%	**MEAT** Of the 263 million tonnes of meat produced globally, over 20% is lost or wasted.
20%	**OILSEEDS & PULSES** Every year, 22% of the global production of oilseeds and pulses is lost or wasted.
45%	**ROOTS & TUBERS** In North America & Oceania alone, 5,814,000 tonnes of roots and tubers are wasted at the consumption stage alone.

Source: Food and Agriculture Organisation (UN)

ADDITIONAL IMPACTS

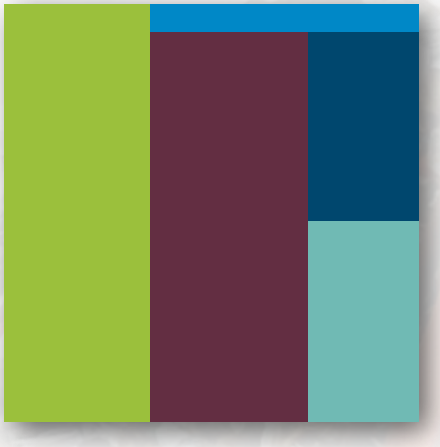
- WATER
- LAND
- ENERGY
- LABOUR & CAPITAL

Source: FAO UN

In the developed world, most food waste is created by consumers; in parts of the developing world there is little or no consumer waste, but poor husbandry causes waste in post-harvest production, storage and transportation. This can be seen pictorially in the diagrams (below).

WHERE FOOD IS WASTED

North America & Oceania



Sub-Saharan Africa

South & South-East Asia

Agricultural Production

Consumption

Post Harvest

Processing

Distribution

Source:
The Guardian

Case Study: Tesco (Amity UK, International and Sterling Bond)

Tesco, the UK's largest food retailer by market size, has set reducing food waste as a key target. Although less than 1% of food is wasted by Tesco, this still equates to 46,000 tonnes. Its strategy is to target its own operations, suppliers and consumers.

Own Operations

Tesco's goal is that no food will go to waste by the end of 2018. Food fit for consumption is distributed to charity. No food has been diverted to landfill since 2009 and non-consumable waste will be diverted to animal feed, biofuel production or energy recovery.

Suppliers

24 of Tesco's largest suppliers have adopted SDG3 to halve food waste by 2030. Tesco is working with suppliers to accept more imperfect product e.g. 'wonky fruit' to reduce waste. Smart technology is also being employed better to align demand with supply. It is also supporting improved husbandry at 'agricultural hubs' in Europe, South America and South Africa.

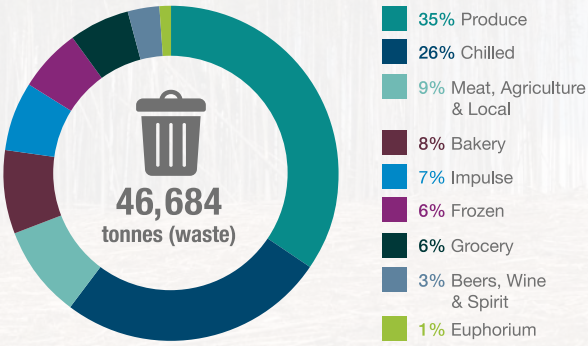
Consumers

The most significant waste in Tesco's mapping lies with the consumer and this is the trickiest to control. Changing promotions to dis-incentivise overbuying, changing packaging to provide an extra five days of usability for meat, and more frozen pre-prepared options that last longer are some of the ways Tesco is responding.

The company is the first food retailer to publish detailed food waste data, and reports 1,700 stores having 'diversion strategies', 5,700 tonnes of edible food donated, and 68m units of imperfect produce sold. Despite growing food sales in 2016/17 by 100,000 tonnes, overall food waste remained constant at 0.5%.

2016/17 FOOD WASTE BY CATEGORY – UK

(Surplus Minus Donations & Animal Feed)

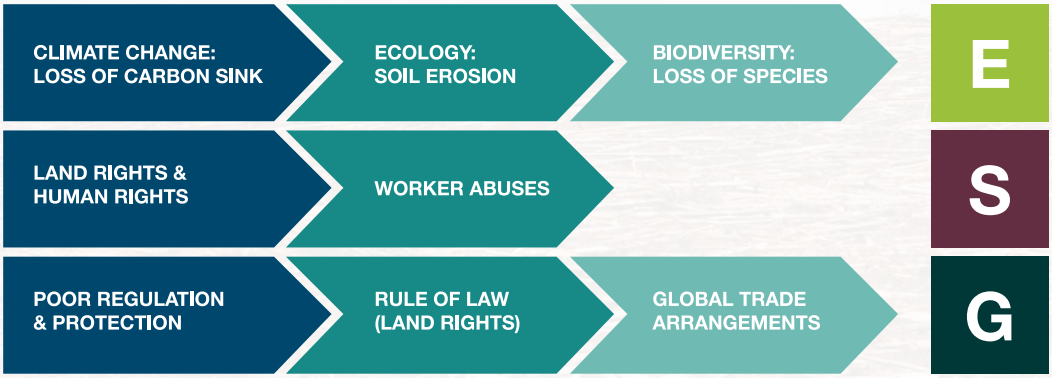


Source: Tesco

Despite growing food sales in 2016/17 by 100,000 tonnes, overall food waste remained constant at 0.5%

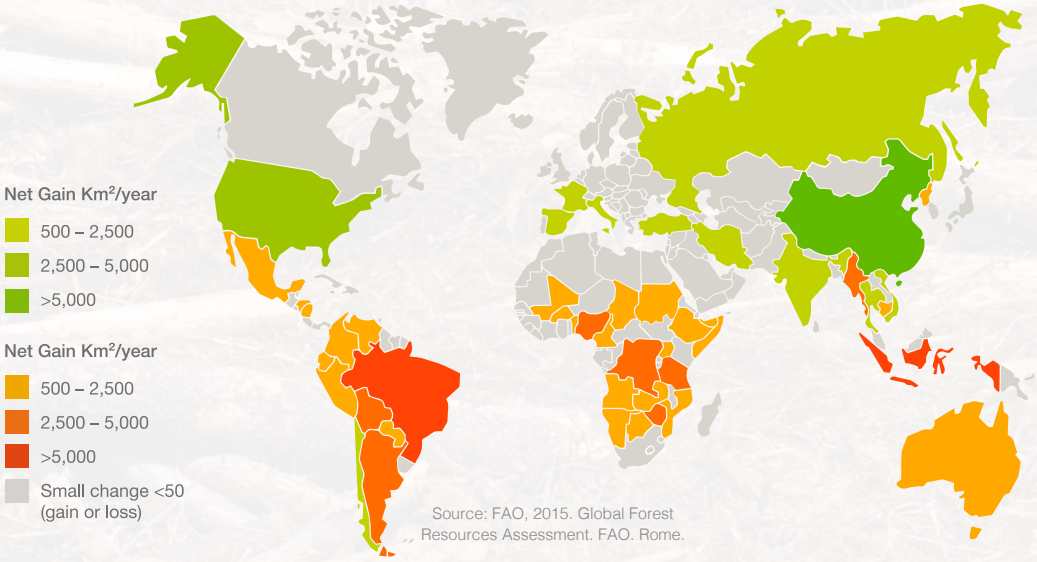
Deforestation

Agricultural expansion is the single largest cause of forest loss, principally driven by global demand for palm, soy, tropical wood and land for grazing cattle. Forest clearing for livestock ranching accounts for 80% of primary Amazon loss. Forest conversion involves removing complex natural forest and its integrated ecology for mono-cultural purposes. Of growing concern is the use of 'set aside' for bio-fuels production. The impacts of deforestation are environmental, social and governance related:



South America, Africa and Indonesia have seen the overall biggest loss of forest, whilst Russia, Europe and the US have seen a net gain over the period 1990-2015.

ANNUAL NET CHANGE IN FOREST AREA (1990-2015)



Source: FAO, 2015. Global Forest Resources Assessment. FAO. Rome.

INVESTIBLE THEMES

As we have seen, substantial improvements in yield and cuts to food waste are required to close the supply-demand gap if a global population of 9 billion is to have secure, nutritious and sufficient food.

This Insight is principally looking at five investible themes: mechanisation; fertilisers; crop protection; plants & seeds and livestock & aquaculture.

It will not specifically look at food producers, processors, retailers or commodity traders. The Amity range is under-represented across the five themes, especially in mechanisation. We have positions particularly in bio-technology and also in crop protection and fertilisers, which are the most value oriented parts. Some parts of the value chain have ethical challenges e.g. intensive farming.

Mechanisation: Emerging economies lag behind developed ones in terms of agricultural machinery production. The use of tractors in the US is twice that of Brazil and eight times that of Russia. Small-scale holdings dominate in emerging economies

Fertilisers: There has been an exponential increase in the use of fertilisers globally to improve yield. Emerging markets use less nitrogen based potash than developed economies. Potash is the most consolidated of fertiliser markets with 80% of reserves in Canada and Russia. Companies exposed to potash are in the fastest growing crop market.

Crop Protection: Herbicides, fungicides and pesticides help to forestall pest invasion to protect yield. Pests collectively can decrease yield by as much as 15-50% depending on the incursion and geography. Pesticides account for around 4% of farm costs and 19% for chemical nutrients. China crop protection has been a key driver of the sector's growth.

Plants & Seeds: Agricultural biotechnology has seen exponential growth with a tipping point reached between conventional and GM crops. In the US 94% of soybean production is herbicide tolerant. Other key markets are South America and increasingly Africa and Asia. Seed enhancing properties are crucial in areas of drought or stress.

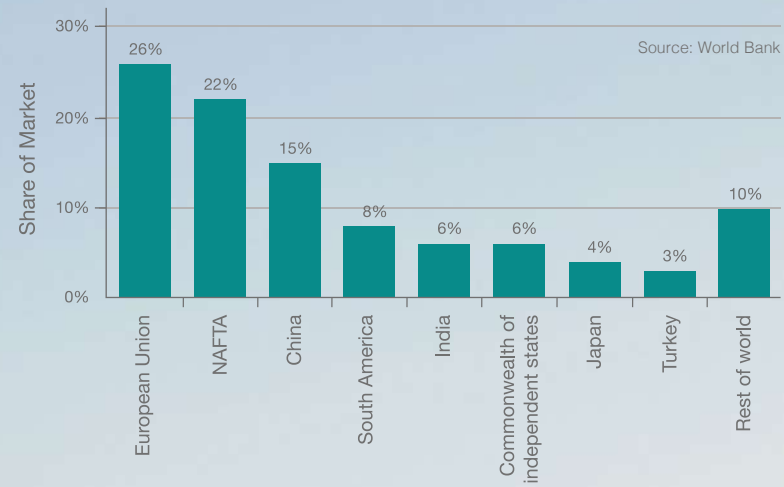
Livestock & Aquaculture: Smaller universe of available companies but livestock contributes 15% of total food energy and 25% of dietary protein. As economies develop people transition to a meat enriched diet. Aquaculture is the fastest growing animal food producing sector but dominated by China and wider-Asia. Our negative screen on intensive farming applies.

CASE STUDY: MECHANISATION

Our core investible theme in Hungry Planet Revisited is mechanisation. The world is exceptionally under-machined despite the tractor being nearly 130 years old and this is inhibiting higher production. 48% of the world's principal farm machines are located in the EU and NAFTA (North American Free Trade Area), whilst China is a distant third with just 15% of the world's machine inventory. Dominant farming regions such as India (6%) and much of Asia (ex-China) have relatively few machines. The four largest global manufacturers by revenue are Deere & Co., CNH, Kubota and AGCO.

The four together had combined revenues of $72.5bn in 2016. Deere is also the world's third largest manufacturer of mechanised equipment after Caterpillar and ABB.

DISTRIBUTION OF TRACTORS



JOHN DEERE

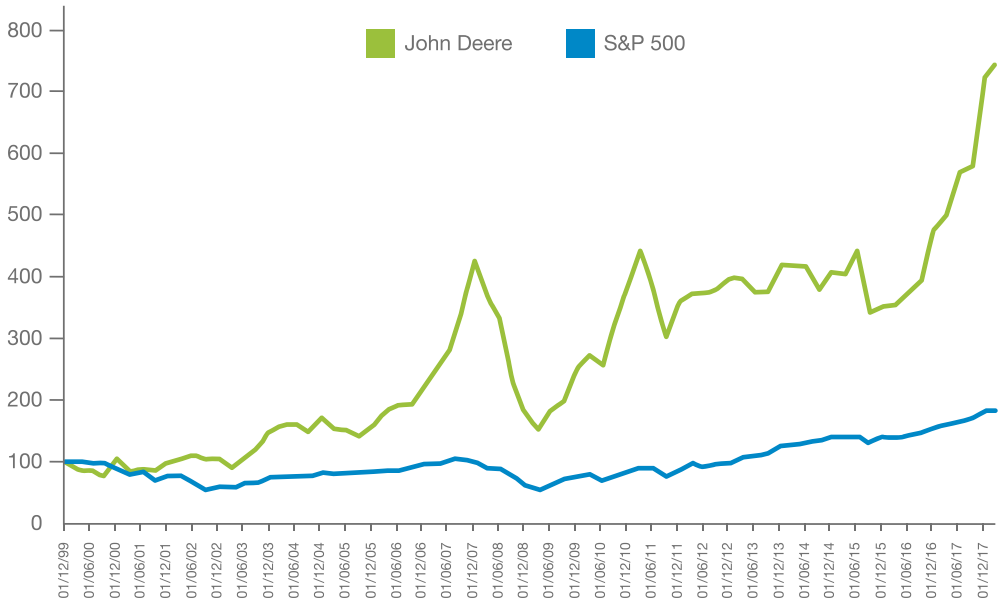
Founded in 1837, John Deere is an iconic US manufacturer of agricultural equipment. The core investment proposition is closely correlated to the themes in this Insight;

- Feeding the world; agricultural output needs to double by 2050
- Natural resources are under strain especially land and water
- Migration from rural to urban areas will create a global need for mechanised infrastructure

Barriers to entry are high, with only four primary agricultural peers and two construction peers. The company is targeting a 12% operating margin by 2020, but is already at an attractive 10.9%. The company had net sales of $29.7bn in Fiscal 17 with net income up 42% to $2.2bn. The company currently yields 1.8%. Deere is a primary supplier to the world's farming community, but as we have seen the developing world is seriously under-machined. The company has consistently delivered impressive returns for investors of 1,000% vs 160% for the S&P since 1999. This equates to an attractive annualised return of 14% vs 5% for the Index.

Deere is increasingly harnessing smart technology and digital solutions to drive competitiveness and the coming together of traditional machine with precision instrumentation.

SHARE PRICE – JOHN DEERE VS S&P 500



Source: EdenTree

THE FUTURE OF FOOD: HEALTH & WELLBEING

This Amity Insight has not concerned itself primarily with food processing and retail, but they form a critical part of the overall supply chain. Diets will need to change if the global epidemic in diabetes and obesity is to be arrested, and achieving this may require alternative production techniques and less land. Reimagining food is therefore part of the debate required to drive more productive, efficient and healthier food. The two food related health challenges the world faces are:

1 billion people have insufficient food everyday – under-nutrition contributes to half of all deaths in children under 5. This equates to 3m lost lives per annum. 22.9% of all children under 5 have stunted growth owing to malnutrition in the first 1,000 days of life.

300m people consume to excess. Diabetes diagnosis linked to diet has increased from 108m in 1980 to 422m in 2014. The global prevalence of diabetes among adults is 8.5%. By 2030 WHO estimates diabetes will be the 7th leading cause of death. In 2014 the WHO estimate 1.9bn people globally were obese.

There is clear evidence that healthier eating is on consumer agendas. PwC research suggested nearly half of 18-34 year olds are changing their eating habits. Increasing government intervention is also having an effect in compelling manufacturers to remove stabilisers and preservatives and reduce salt and sugar content. Interest is growing in vegetarianism and veganism which may eventually slow the otherwise exponential growth in protein enriched diets. The Global Wellness Institute puts the global wellness economy as being worth $3.7 trillion in 2015, of which healthy eating, nutrition and weight loss comprised $648bn or nearly 18%.

GLOBAL WELLNESS ECONOMY – $3.7 TRILLION IN 2015

Note: Numbers may not add up due to overlap in sections.
Source: Global Wellness Institute, Global Wellness Economy Monitor, January 2018

We refreshed our positive Healthcare pillar in 2017 to become Health & Wellbeing. This allows us to include nutrition, diet, exercise and wellness in one instrumental investment theme. As well as our traditional approach to pharmaceuticals, biotechnology and clinical care, the pillar will now consider product quality in terms of balance and nutrition, target salt, sugar and fat reduction initiatives and support companies progressing an overall commitment to 'healthy options'.

Companies involved in sport, exercise or other physical activity will be considered from a wellbeing perspective. Companies failing to provide healthy options may be excluded under the positive pillar.

HEALTH & WELLBEING

Businesses focused on

- Affordable Healthcare
- Access to Medicine
- Pharmaceuticals R&D
- Biotechnology
- Clinical Care
- Nutrition & Wellbeing

> **"Food and beverage companies have a powerful role to play in helping tackle the mounting global nutrition crisis**
>
> – ATNI 2017

ACCESS TO NUTRITION INDEX™

We are signatories to the Access to Nutrition Index which launched in 2013. The Index ranks global food manufacturers across seven criteria to measure their approach to nutrition. The top three companies ranked out of 20 surveyed in the 2018 rankings were Nestlé, Unilever and Danone.

The ATNI results show that whilst progress has been made, there is still much to do with the best and most committed company scoring just 6.8 out of 10. However, we remain positive; the world's largest 22 food companies have:

- Contributed to improved diets
- Refreshed products with reducing levels of saturated fats, salt and sugar
- Provided informative health and nutrition advice
- Improved labelling to enhance consumer awareness
- Moved into healthy options

THE FUTURE OF FOOD: TECHNOLOGY

The various challenges the world faces from diminishing farm labour to water stress, require new approaches. Agriculture, given its impact on climate change, will need to become a resilient engine for sustainable development. One way this is beginning to happen is through the harnessing of technology, big-data, artificial intelligence and smart infrastructure. Agriculture is a very traditional industry, and has been slow to embrace technology, but this is changing. Data, sensors, bots, drones and satellite imagery are all increasingly utilised to improve yield. Precision instrumentation can target and optimise seed, water and nutrient distribution. Face recognition technology is even being used in animal husbandry to transform health management. Where there are labour shortages, robotics are replacing intensive processes. The start-up market is vibrant with agricultural technology start-ups raising $4.4bn in the first half of 2017 – 21% of this in Europe. Major companies such as John Deere and DuPont are all embracing climate science, soil analytics, density sensors and field related technologies. One example is Blue River's 'See & Spray' technology, which calibrates 5,000 decisions per minute with distribution accuracy to within 63mm.

Critical to solving the challenges outlined in Hungry Planet Revisited will be applying technology to tried and tested production processes. In particular we will look for companies with expertise in:

- Farm management software
- Animal data
- Smart irrigation
- Precision agriculture and predictive analytics
- Robotics and drones
- Sensors
- Plant data analysis
- Next generation farms

CONCLUSION

This Insight has set out the acute challenges associated with feeding a rising population. Business as usual may not be an option when water stress, land reduction, an absence of labour and climate change are all factored in. Crucial in closing the supply-demand gap will be concerted effort to reduce food waste and the harnessing of mechanisation and technology. We see a broad universe of opportunities across our 'five investible themes', with current exposure mostly in bio-technology and crop protection. The sector's broad and deep reach means the risks and opportunities are materially interconnected with a broad range of ESG (environmental, social and governance) issues, most materially water stress, climate change and deforestation.

You may also like to read our companion Insight published in 2017, Thirsty Planet Revisited, and available at www.edentreeim.com

VIEW FROM THE TOP

David Osfield CFA
Manager of the Amity International Fund

The challenge of feeding the projected 9.3 billion on our earth in 2050 is multi-faceted, reflected in our other recent Amity Insights, Thirsty Planet Revisited and Natural Capital. Increasing urbanisation and rising incomes in emerging economies, exponential demand for protein, coupled with decreasing availability of fertile land and the increasing prevalence of extreme weather presents a complex supply/demand equation.

Reducing the staggering level of food waste, estimated by the UN at 33% of global food production, requires significant supply chain investment in emerging markets, coupled with wholesale change in attitude to over-consumption in countries like the United States. Earth Day provides an annual reminder of the prevailing food poverty and inequality between the emerging world and the developed world, with the latter continuing to see rapidly rising levels of obesity. While developing world focus remains on quantity with the primary aim to achieve zero hunger, the developed world remains more concerned with quality, with initiatives around supply chain traceability and transparency driven by ethical sourcing and production.

In order to address the zero hunger challenge, the development and utilisation of technologies to increase yields through efficiency gains should be encouraged. However, short-term profit-orientation by farmers and corporations can clearly result in overly intensive production, impairing the longevity of our agricultural resources. Water stress is a particular concern, given agriculture accounts for nearly 70% of all abstraction - efficiency gains here are urgent, however the consequences for short-term exploitation will be profound.

Careful application of automated and precision technologies could be one solution to managing yields efficiently. Remote sensing and monitoring is increasingly being deployed by farmers looking to manage scale – Farmers Weekly estimated that over 60% of Britain's farmland is now managed by precision methods such as sensors, drones, virtual field-maps and GPS-guided tractors. Robotic farming methods, coupled with real-time predictive crop management tools are experiencing greater development as big data, AI and machine-learning furthers agronomy. The 'Hands-Free Hectare Project' at Harper Adams University found that automation was not only affordable, but could work on a micro scale with smaller machines which are more precise and kinder on soil degradation. Preserving soil is an increasing priority with half a dozen US states prioritising legislation to encourage carbon farming and reducing soil degradation. Recent research found that 0.4% growth per year in soil carbon (carbon farming) would halve the increase in atmospheric CO2. With urbanisation continuing to pressure the rural workforce in the future, it seems inevitable that technology will play a greater role in progressing regenerative agriculture.

As responsible investors we need to appraise the positive and negative impacts that farming mechanisation, automation and innovation creates on a long-term basis if we are to end hunger and improve health and nutrition.

WHY EDENTREE?

- Over 30 years of experience of socially responsible investing (SRI)
- Funds that are both positively and negatively screened
- An investment team with a wealth of experience spanning many years
- A comprehensive in-house SRI research function
- An independent panel that reviews investment decisions
- A robust socially responsible investment process
- A pride in our independent analysis. We're not afraid to adopt contrarian positions and are in favour of long-term investment horizons
- A consideration of the preservation of capital as our primary responsibility, preferring absolute returns over relative performance
- Fund Managers at EdenTree are unconstrained by rigid stock lists, permitting more flexibility to take advantage of good-value opportunities as they present themselves
- Decision-making for the long term, as frequent trading increases costs and decreases returns
- Avoidance of companies materially involved in alcohol production, gambling operations, pornographic and violent material, tobacco production, testing animals for cosmetic or household products, supporting oppressive regimes or strategic weapon production
- Actively seeking out companies with a record of involvement and good performance in terms of business practices, community relations, corporate governance, education, environmental management, healthcare, human rights, labour relations and urban regeneration

OUR PEOPLE

Sue Round
Director of Group Investments and Senior Fund Manager

Sue is the UK's longest-serving retail SRI Fund Manager. She launched the Amity UK Fund 30 years ago – pioneering our Profit with Principles investment approach.

Neville White
Head of SRI Policy and Research

Neville is responsible for SRI policy and research and leads on global corporate governance proxy voting and engagement with business around environmental, social and governance issues. He previously managed socially responsible investments for a number of church and charity investment managers and joined EdenTree in 2010.

Rob Hepworth
Chief Investment Officer

Rob joined EdenTree as an Investment Analyst in 1988, became a Fund Manager in 1990 and CIO in 2011. Rob is responsible for forming the investment team's long-term strategy. He won the Fund Manager of the Year Award (Global Category) in 2010 and was nominated for Fund Manager of the Year in 2013 (Balanced Category). He has also been named FE Alpha Manager for nine consecutive years.

Esmé van Herwijnen
SRI Analyst

Esmé holds a Master's degree in Sustainable Business from Toulouse Business School and gained experience in ESG research from Sustainalytics and PIRC. She is the EdenTree lead on climate change and supports the SRI team with company screening, proxy voting and engagement.

Chris Hiorns CFA
Senior Fund Manager

Chris has worked at EdenTree since 1996 having gained an MSc in Economics from University College London. He started as an Investment Analyst before being appointed Fund Manager in 2007. He has managed the Amity Balanced Fund for Charities since launch in 2011 and the Amity Sterling Bond Fund since 2008. He has been a CFA Charterholder since 2004.

Ketan Patel CFA
Fund Manager

Ketan joined EdenTree in 2003. He began his career on the equity derivatives desk at JP Morgan, before moving to Insight Investment as a Global Healthcare Analyst. Ketan is a co-manager on the Amity UK and UK Equity Growth Fund. He has been a CFA Charterholder since 2009 and holds post-graduate degrees in both Geography and Economics from the University of London.

David Osfield CFA
Fund Manager

David joined EdenTree in July 2016 after beginning his career at sustainable investment specialist Alliance Trust in 2002. During his time there, David largely focussed on Asian equities, although he has also covered pan-European and Global equities. David has a 1st class BA (Hons) in Business Finance from Durham University and is a CFA Charterholder.

Phil Harris
Fund Manager

With over 25 years' experience in UK small and mid-cap company sectors, Phil joined EdenTree in 2015 to run the UK Equity Growth Fund. He focuses on growth small-caps and previously specialised in corporate activism.

David Katimbo-Mugwanya CFA
Fund Manager

David joined EdenTree in 2015 bringing almost a decade of fixed income experience to our portfolios. David is a CFA Charterholder and holds a BSc in Economics from the University of Essex. His previous experience at Epworth Investment Management saw him managing institutional client and charity portfolios.

Thomas Fitzgerald
Fund Manager

Tom joined EdenTree in 2011 as a Research Analyst. During his time at EdenTree Tom has supported the Investment Team in providing detailed company analysis and thematic research into a number of emerging sustainable trends. Tom continues to contribute investment ideas to other funds, as well as co-managing the Higher Income Fund. He is currently studying for the CFA.

NOTES

How to contact us

We hope you have found this Amity Insight interesting and useful. If you have any questions, or would like to know more about our responsible investment, in-house research and analysis, please get in touch.

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