

IMPLEMENTING THE PARIS CLIMATE AGREEMENT & THE 2030 SUSTAINABLE DEVELOPMENT GOALS

Innovative approach to food & farming required

“the view has emerged that humankind will not be able to feed itself unless current industrial modes of agriculture are expanded and intensified. This approach is wrong and counterproductive and will only serve to exacerbate the problems experienced by the current mode of agriculture ... there is a need to encourage a major shift from current industrial agriculture to transformative activities such as conservation agriculture (agroecology)”

**Hilal Elver,
UN Special Rapporteur on the right to food: 2015**

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Globally a crucial challenge for 2016 and succeeding years is implementation of two closely linked agreements: the Paris Climate Agreement and the 2030 Sustainable Development Goals (SDGs). Both require fresh thinking on food and farming.

Policies and action designed to implement the Climate Agreement and the SDGs must be aligned. Indeed Goal 13 of the SDGs is *"Take urgent action to combat climate change and its impacts"*.

A wide range of the 2030 SDG goals and targets must be taken into account in framing policies on food and agriculture; these are set out in Table 1. These policies need to take an integrated approach, ensuring that one goal or target is not achieved at the expense of another. They must strive to satisfy all of them; synergies should be maximised and trade-offs avoided as far as possible. Identifying and addressing interlinkages between the different SDG goals and targets that have a bearing on food and agriculture is necessary to avoid working in silos and to ensure balanced progress.

The SDGs aim for an increase in agricultural productivity particularly for small-scale food producers. However, looking at the SDGs as a whole it is clear that this must be accomplished in ways that:

- Achieve food security
- Improve health and nutrition
- Combat climate change
- Reverse land degradation and improve land and soil quality
- Use water sparingly
- Reduce nutrient pollution
- Halt biodiversity loss
- Halt deforestation
- Maintain ecosystems
- Halve food waste and reduce food losses.

In addition, the SDGs aim for responsible consumption with people having the relevant information and awareness that foster lifestyles in harmony with nature.




Industrial farming harms natural resources





Some argue in favour of further industrialisation of agriculture. Those doing so often have a commercial interest in this approach. However, industrial livestock production is dependent on feeding grain – much of which could be used for direct human consumption – to animals who convert it very inefficiently into meat and milk.^{i ii iii} Industrial livestock's need for huge quantities of cereals and soy as animal feed has fuelled pollution and overuse of water^{iv} as well as expansion of cropland and intensification of crop production.^v This has led to deforestation^{vi}, land use change, biodiversity loss^{vii}, greenhouse gas (GHG) emissions^{viii}, nitrogen pollution^{ix} and soil degradation.^{xi} The continued use of industrial livestock and arable production will make it impossible to meet the SDGs that relate to these factors.

... and undermines food security

Studies show that for every 100 calories fed to animals in the form of human-edible crops, we receive on average just 17-30 calories in the form of meat and milk.^{xii xiii} Some papers indicate that the efficiency rates may be even lower for meat.^{xiv} The FAO warns that further use of cereals as animal feed could threaten food security by reducing the grain available for human consumption.^{xv} The waste entailed in feeding cereals to animals is such that UNEP calculates that the cereals which, on a business-as-usual basis, are expected to be fed to livestock by 2050, could, if they were instead used to feed people directly, provide the necessary food energy for over 3.5 billion people.^{xvi}

TABLE 1:
SDG goals and targets that must be met by future food and agriculture policies

 <p>Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture</p>	<p>2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round</p> <p>2.2 By 2030, end all forms of malnutrition</p> <p>2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers</p> <p>2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality</p> <p>2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species</p> <p>3.4 By 2030, reduce by one third premature mortality from non-communicable diseases</p>
 <p>Goal 3: Ensure healthy lives</p>	
 <p>Goal 6: Ensure availability and sustainable management of water</p>	<p>6.3 By 2030, improve water quality by reducing pollution</p> <p>6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity</p> <p>6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes</p>

	<p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p> <p>Goal 12: Ensure sustainable consumption and production</p>	<p>12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses</p> <p>12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature</p>
	<p>13 CLIMATE ACTION</p> <p>Goal 13: Take urgent action to combat climate change and its impacts</p>	
	<p>14 LIFE BELOW WATER</p> <p>Goal 14: Conserve and sustainably use the oceans, seas and marine resources</p>	<p>14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution</p>
	<p>15 LIFE ON LAND</p> <p>Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</p>	<p>15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally</p> <p>15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world</p>

A constructive role for livestock

Livestock contribute to food security when they are fed on materials that cannot be eaten by humans such as pasture or other grassland, crop residues, by products and unavoidable food waste. Research funded by the FAO argues that the role of livestock “is to use resources that cannot be otherwise used for food production”.xvii

This research shows that the environmental pressures from livestock production could be reduced by focusing on grassland-based ruminant production and by reducing the amount of feed derived from cropland in both ruminant and monogastric feeding rations. This can lead to reduced arable land use and a decrease in nitrogen pollution, pesticide use, soil erosion and GHG emissions.xviii

Semi-natural grasslands support biodiversity and store large carbon stocks. However, care must be taken to avoid overgrazing which in marginal lands can lead to desertification. Nor should new pastures be created by deforestation.

The World Bank is extremely positive about the benefits of rotational integrated crop-livestock production.xix In such systems crop residues can be used to feed animals and their manure, rather than being a pollutant, fertilises the land.

We need to reshape the contribution of livestock to food supply; their role should primarily be to convert inedible materials into food. The use of human-edible grain as animal feed should be substantially reduced. This would allow fewer crops to be produced enabling land, soil, water, forests, biodiversity and ecosystems to be protected and restored as required by the SDGs.

Ending hunger

Hunger is primarily due to poverty rather than to insufficient quantity of global production.xx Olivier De Schutter, former UN Special Rapporteur on the right to food, stresses that increasing food production will not of itself be sufficient to combat hunger.xxi It must be combined with greater social equity and improved livelihoods for the poorest, particularly small-scale farmers in the developing world.

Smallholder livestock farmers must be helped to increase their productivity in ways that are appropriate for their circumstances. This should not entail the introduction of industrial livestock systems as these exclude participation of the poorest farmers. They are out-competed by industrial production which provides little employment.

A constructive approach would be to help small-scale farmers provide improved healthcare and nutrition for their animals through better disease prevention and management, the expansion of veterinary services and the cultivation of fodder crops such as legumes. Better animal health and nutrition result in increased livestock productivity and longevity. This will improve smallholders’ purchasing power, making them better able to buy the food that they do not produce themselves and to have money available for other essentials such as education and health care.

Increased production is indeed needed in the world’s poorest regions but this must be achieved in a genuinely sustainable manner. A study in resource-conserving agriculture

shows that industrialisation is not needed in order to increase productivity. It examined the impact of 286 projects in 57 poor countries.xxii The projects included integrated pest and nutrient management, conservation tillage, agro-forestry and water harvesting. These projects increased productivity on 12.6 million farms. The average crop yield increase was 79%. All crops showed water use efficiency gains. Of projects with pesticide data, 77% resulted in a decline in pesticide use by 71% while yields grew by 42%.

Malnutrition comprises both hunger and diets that are deficient in essential vitamins and minerals. Deficiencies in vitamin A, iron, iodine and zinc have adverse impacts on health and may impair physical and mental development and the immune system.xxiii Addressing micronutrient deficiencies requires a range of approaches including fortification of food with vitamins and minerals, biofortification (increasing the micronutrient content of crops through conventional plant breeding), greater dietary variety, increased consumption of fruit and vegetables and avoidance of a high proportion in diets of predominantly processed foods. Monocropping of certain staples should be replaced by more diverse farming systems as these would help to ensure better diets.xxiv

Implementing the Paris Climate Agreement

The Agreement stresses that the emission reductions pledged to date are insufficient to meet the 'well below 2°C' target and that much greater emission reductions will be required in order to hold the increase in temperatures to below 2 °C.

Clearly all sectors must reduce their emissions. However, research shows that on a business-as-usual (BAU) basis agriculture's GHG emissions will increase by 2050 by 77%. Even if yield gaps are closed its emissions will rise by 42%.xxv By 2050, on a BAU basis, agriculture alone will take us over the 'well below 2°C' target leaving very little room for other sector's emissions.xxvi xxvii

Technical mitigation measures and increased productivity will be insufficient on their own to prevent an increase in farming's GHG emissions, let alone achieve a reduction.xxviii Research shows that only a 50% decrease in food waste and a shift to healthy diets with reduced meat and dairy consumption can produce a fall in agriculture's GHG emissions.xxix Reduced meat and dairy consumption could bridge over a quarter of the gap between the emission reductions pledged to date and those needed to meet the 'well below 2°C' target.xxx

Reduced meat and dairy consumption would not only help meet the Paris target but would also contribute to realising the SDGs on health, nutrition, food security, natural resources and sustainable consumption. However, reductions in meat and dairy consumption would not be appropriate in the world's poorest regions.

ⁱ Lundqvist, J., de Fraiture, C. Molden, D., 2008. Saving Water: From Field to Fork – Curbing Losses and Wastage in the Food Chain. SIWI Policy Brief. SIWI.
http://www.siw.org/documents/Resources/Policy_Briefs/PB_From_Field_to_Fork_2008.pdf

ⁱⁱ Nellemann, C., MacDevette, M., Manders, et al. (2009) *The environmental food crisis – The environment's role in averting future food crises*. A UNEP rapid response assessment. United Nations Environment Programme, GRID-Arendal

ⁱⁱⁱ Cassidy E.M et al, 2013. Redefining agricultural yields: from tonnes to people nourished per hectare. University of Minnesota. Environ. Res. Lett. 8 (2013) 034015

^{iv} Mekonnen M and Hoekstra A, 2012. A global assessment of the water footprint of farm animal products. Ecosystems.: DOI: 10.1007/s10021-011-9517-8

^v Westhoek H et al, 2014. Food choices, health and environment: Effects of cutting Europe's meat and dairy intake. Global Environmental Change, Vol 26, May 2014 p196-205.
<http://www.sciencedirect.com/science/article/pii/S0959378014000338>

^{vi} European Commission, 2013. The impact of EU consumption on deforestation: Comprehensive analysis of the impact of EU consumption on deforestation.

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- vii Commission staff working paper, 2011. Analysis associated with the Roadmap to a Resource Efficient Europe Part II, SEC (2011) 1067 final
- viii Bajželj B. et al, 2014. Importance of food-demand management for climate mitigation. *Nature Climate Change* <http://www.nature.com/doifinder/10.1038/nclimate2353>
- ix Eds. Sutton M.A., Howard C.M., Erisman J.W., Billen G., Bleeker A., Grennfelt P., van Grinsven H. and Grizzetti B., 2011. *The European Nitrogen Assessment*. Cambridge University Press.
- x Sutton M. et al, 2013. *Our Nutrient World: The challenge to produce more food and energy with less pollution*. Global Overview of Nutrient Management. Centre for Ecology and Hydrology, Edinburgh on behalf of the Global Partnership on Nutrient Management and the International Nitrogen Initiative.
- xi Edmondson et al, 2014. Urban cultivation in allotments maintains soil qualities adversely affected by conventional agriculture. *Journal of Applied Ecology* 2014, 51, 880–889
- xii Lundqvist, J., de Fraiture, C. Molden, D., 2008. *Saving Water: From Field to Fork – Curbing Losses and Wastage in the Food Chain*. SIWI Policy Brief. SIWI. http://www.siw.org/documents/Resources/Policy_Briefs/PB_From_Filed_to_Fork_2008.pdf
- xiii Nellemann, C., MacDevette, M., Manders, et al. (2009) *The environmental food crisis – The environment's role in averting future food crises*. A UNEP rapid response assessment. United Nations Environment Programme, GRID-Arendal
- xiv Cassidy E.M et al, 2013. Redefining agricultural yields: from tonnes to people nourished per hectare. *University of Minnesota. Environ. Res. Lett.* 8 (2013) 034015
- xv FAO, 2013. *Tackling climate change through livestock*
- xvi Nellemann, C., MacDevette, M., Manders, et al. (2009) *The environmental food crisis – The environment's role in averting future food crises*. A UNEP rapid response assessment. United Nations Environment Programme, GRID-Arendal,
- xvii Schader C et al, 2015. Impacts of feeding less food-competing feedstuffs to livestock on global food system sustainability. *J. R. Soc. Interface* 12: 20150891. <http://dx.doi.org/10.1098/rsif.2015.0891>
- xviii *Ibid*
- xix *Minding the stock: bringing public policy to bear on livestock sector development*, 2009. World Bank. Report No. 44010-GLB
- xx The role of research in global food and nutrition security, 2015. Expo 2015 EU Scientific Steering Committee http://europa.eu/expo2015/sites/default/files/files/FINAL_Expo-Discussion-paper_lowO%281%29.pdf
- xxi Report submitted by the Special Rapporteur on the right to food, Olivier De Schutter. 17 December 2010. A/HRC/16/49 <http://www2.ohchr.org/english/issues/food/docs/A-HRC-16-49.pdf>
- xxii Jules Pretty et al., "Resource-conserving agriculture increases yields in developing countries," *Environmental Science and Technology*, 40:4, 2006, pp. 1114–1119.
- xxiii http://www.unicef.org/nutrition/index_bigpicture.html
- xxiv Report of the Special Rapporteur on the right to food, Olivier De Schutter. 26 December 2011. A/HRC/19/59 http://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session19/A-HRC-19-59_en.pdf
- xxv Bajželj B. et al, 2014. Importance of food-demand management for climate mitigation. *Nature Climate Change* <http://www.nature.com/doifinder/10.1038/nclimate2353>
- xxvi *Ibid*
- xxvii Wellesley et al, 2015. *Changing climate, changing diets: pathways to lower meat consumption*. Royal Institute of International Affairs
- xxviii Bailey B et al, 2014. *Livestock – Climate Change's Forgotten Sector*. Chatham House
- xxix Bajželj B. et al, 2014. Importance of food-demand management for climate mitigation. *Nature Climate Change* <http://www.nature.com/doifinder/10.1038/nclimate2353>
- xxx Wellesley et al, 2015. *Changing climate, changing diets: pathways to lower meat consumption*. Royal Institute of International Affairs