COMMENTS ON HLPE_SUST-AGR-DEV-LIVESTOCK_DRAFT V0
Sustainable Agricultural Development for Food Security and Nutrition, including the Role of Livestock

Dear HLPE members,

Thanks for the opportunity of taking part to this discussion. Adrian Mueller on behalf of IFOAM Organics International, FiBL and TIPI compiled the following comments.

Answers to the specific questions posed for the consultation process:

1. The report is wide-ranging and comprehensive in analyzing the contribution of sustainable agricultural development to ensuring food security and nutrition (FSN), with a particular focus on the livestock sector because of its importance for both nutrition and sustainable futures. Do you think that the report is striking the right balance between agricultural development overall and the livestock sector specifically with respect to their relative contribution to FSN?

ANSWER: Well, it has a strong focus on livestock, indeed, but this is largely ok; however, the role of over-fertilization for N2O emissions should be addressed in such a report as well, as there lies a big potential for improvements. In addition, it may be criticized that the focus is on the production side only and much less so on demand side measures.

2. The report is structured around context, trends, challenges and pathways/responses. Do you think that these are comprehensive enough, and adequately considered and articulated? Does the report strike the right balance of coverage across the various chapters? Are there important aspects that are missing?

ANSWER: The structure is ok, but it should become much more concrete when it comes to recommendations, cf. detailed comments; missing aspects: also see the detailed comments, in particular, as just mentioned: demand side aspects and fertilization.

3. The report uses a classification to distinguish between four broad categories of livestock systems, in order to better identify specific challenges and sustainable development pathways for each of them. Do you find this approach useful for identifying specific policy responses and actions in different socio-economic and environmental contexts?

ANSWER: Well, this approach could be useful, but it is not used that much in the report, in particular towards the end and for structuring recommendations, etc. – thus, if such a structure is proposed, it could be utilized more prominently.

4. The report has referenced key projections and scenario studies in identifying the drivers and trends through to 2050. Are there other studies that the report needs to reference, which offer different
perspectives on the future outlook for the agriculture (including livestock) sector, in particular those that focus on nutrition and diet?

ANSWER: scenarios that emphasize dietary changes should be included and discussed more prominently (e.g. Stehfest et al. 2009); also other strategies such as reduced concentrate feed and grassland-based ruminant production has its potential as a complement to increased efficiency – this could also be described. (e.g. Schader et al. 2014).

5. The report has identified a wide range of challenges likely to be faced in the coming period to which policy makers and other stakeholders will need to take into account so that SADL can contribute to FSN. Do you think that there are other key challenges/opportunities that need to be covered in the report, including those related to emerging technologies, the concentration and intensification of production in livestock, and the implications for feedstuffs (crops and oilseeds), and international trade?

ANSWER: as already pointed out, the consumer behavior side should be covered more in depth and on a similar standing as the production side. Furthermore, some key aspects of crop production should be addressed: N inputs and also CC impacts on yields (there is one reference Havlik et al. 2015 that evidently presents some scenarios on this, but we did not find this reference in the list); several publications suggest that these impacts can be considerably negative (e.g. Müller et al. 2010, Challinor et al. 2014, Porter et al. 2014, Müller and Robertson 2014).

6. A decision-making approach that could be useful for policy makers in designing and implementing policies and actions has been proposed in Chapter 4 of the report. Is this a useful and pragmatic approach?

ANSWER: No, it is just a general suggestion on how to solve any problem: on p 67, it reads as follows: “It is imperative, in first identifying the priority challenges, to articulate them as clear, measurable objectives, then undertake analysis based on sound data and evidence in order to define the potential response options as a prelude to design and implement chosen policies and actions and, finally, to monitor and evaluate the results, which, in turn, could generate another round in the response cycle.” But this is basically common sense to solve any problem. The contribution of such a report would be in providing much more detailed proposal for the specific aspects listed before this section 4.5., namely the challenges and responses – as information is needed on when to choose which response and what may be its advantages and drawbacks, etc. – maybe assessing this with a SWOT analysis, for example (cf. detailed comments for some further suggestions on how to make this more concrete).

7. Chapter 4 also contains case studies/examples of evolutions of agricultural development policies and actions in different contexts/countries. Could you offer other practical, well-documented and significant examples to enrich and provide better balance to the variety of cases and the lessons learned in agricultural development, including the trade offs or win-win outcomes in terms of addressing the different dimensions of sustainability and FSN?

ANSWER: Well, yes, the literature contains thousands of case studies that could serve to illustrate specific aspects – I would suggest to identify some few most informative case studies for basically each response listed, drawing conclusions from each of those case studies in order to allow policy makers to adapt it to their own cases of interest. – It would be good to complement this report with a web-based data-base of case studies, to identify optimal strategies and responses. Given the necessity to in detail account for the specific local context in each situation, it would be of key importance to systematically collect the wealth of information available from a host of case studies in both the scientific literature, but also in government and NGO reports.

Setting up a well-searchable and standardised database containing all this information would help to identify viable options in specific cases. Successful cases of responses and policy design, but also failures, would serve as a rich basis for policy and management design in new cases of similar
characteristics. Compiling such a data base, with help of the public, would be an important task for the FAO, for example, as such authoritative hosting would support achieving high quality and coverage, as well as consistent data representation. However, the public should repeatedly be asked to fill in own case studies which subsequently would be harmonized by the host. Because of the context-specificity, such a database could be a valuable tool for designing and implementing optimal policies.

8. The social dimension of sustainable agriculture development has often been less well described and understood, including due to lack of data. Examples and experiences on such issues (livelihoods, gender, share and situation of self employed versus wage workers, working conditions, etc.) would be of particular interest to the team.

ANSWER: -

9. The upstream and downstream sectors are playing an increasingly important role in respect of the orientation of agricultural development, food choices and diets. Can you provide examples of the role these sectors play in sustainable agricultural development and FSN?

ANSWER: well, this is a whole research program in itself – include it in a well-organised attempt to fill such a data base with help of the public, as described above.

10. What are the key policy initiatives or successful interventions to improve the sustainability of food systems, in different countries and contexts that merit discussion in the report? Is there evidence about the potential of economic incentives, and which ones (taxes, subsidies etc.), regulatory approaches, capacity building, R&D and voluntary actions by food system actors?

ANSWER: again – compiling and synthesizing this would be a whole research program in itself – there is quite some literature of potential relevance for this report, and it would definitely be good to have this included in the report in detail. In general, the report is strong in synthesis of the problem statement and forecasts – but more work is needed to have a similarly encompassing assessment of potential responses in such a way that it really serves to guide decision makers.

11 The design and implementation of policies for FSN requires robust, comparative data over time and across countries. Where are the data gaps that governments, national and international organizations might need to address in the future in order to understand trends and formulate better policies?

ANSWER: again a big task; cf. remarks above; such a data base would also help to identify data gaps.

12 Are there any major omissions or gaps in the report? Are topics under-or over-represented in relation to their importance? Are any facts or conclusions refuted or questionable? If any of these are an issue, please send supporting evidence.

ANSWER: cf. remarks above and detailed comments below; most important: take up demand side measures; address key aspects of crop production for food (e.g. fertilization); be more concrete regarding policy suggestions.

General remarks:

The report starts with a good and balanced overview at the beginning, both regarding current and future challenges, results from projections and the importance of a whole food systems approach.

However, later on, it does not live up to this; when it comes to recommendations and concrete actions, the demand side, consumer behavior and dietary change plays a much less prominent role than it could based on existing forecasts. The report thus overly focuses on the production side and does not harvest
the potential of a true food system approach, also focusing on demand measures (besides some
emphasis on reducing food wastage – but also there, focusing more on the other value chain steps than
consumption). Dietary change is some topic with regard to health issues, but is is never addressed
which potential this may have. However, dietary change towards less animal products should be
addressed in general, as one potential strategy to deal with the identified challenges – when
considering health issues, mainly red meat reductions are important, however, from an environmental
perspective and going beyond GHG, reducing monogastric products can be key as well. The potential
of such dietary changes not motivated by health issues alone should be made explicit in this report as
well.

Another drawback is that the report remains rather general in recommendations; this may change in a
revised version and when more case studies are added, but emphasis should be put on truly provide
inputs to decision makers etc., that help them developing strategies for more sustainable food systems
(cf. the detailed comments below for somewhat more input on that).

**Detailed remarks:**

Page 12, line 29: replace the forecasts with actual development – it is 2015, data up to 2014 will be
available.

Page 13, line 45: no biophysical limits?? – check original publication.

Page 18, line 23ff: it is claimed that the 4 livestock production systems combined with 3 crop
production systems serve to structure the report; this structure is however of decreasing importance
towards the end and it could be made more prominent when discussing the challenges and responses
and recommendations.

Page 26, line 3 ff: increasing demand for livestock is seen as positively influencing Food Security and
Nutrition (FSN) – mentioning that this will need more animals and also more feed, but not pointing to
any potential challenges related to that at this place in the report. Up to there, the report is nicely
cautious and balanced and open to may pathways for increasing sustainability (incl. reduced livestock

Page 25, line 50ff: In a nutshell, the LR highlights accelerated 50 growth in demand for livestock
products in parts of the developing world, tied to human population 51 growth, rising incomes,
continuing urbanization and changing food preferences. The notion of the LR with its promise of diet
diversity, better nutrition and health, and also economic opportunities for small-scale producers – is
one of the most powerful ideas to emerge in the areas of food, nutrition and agricultural development
over the last decade (Sumberg and Thompson, 2012). This is strange: not clear what LR is and then
claiming that this is most powerful?? – the report is in general very balanced and encompassing – but
then there are short parts, few sentences only, that give undue weight to particular aspects/views that
invalidate the rest.

The then following list to explain LR from Delgado et al. 1999 reads as a harshest intensification
strategy, - just like the red herring we made of Gerber et al. etc. in our concept paper, first version…

Page 34/35: a box, where “intensification” is clearly defined, what it entails and what not –
differentiated according to different systems, if needed, should be added – currently, this term remains
too vague; - statements such as p35, line 33/34: “As production systems intensify and become more
efficient, less feed is needed to produce a given 33 unit of livestock product, with positive effects on
the environment.” are problematic – they suggest that intensification and efficiency go along, which
can be but need not be the case; furthermore, efficiency can take various forms: yield per gross energy
input, or per DM input or per ha land use, and it could also include environmental efficiency, when
assessing total GHG emissions per ton produce (including feed production), etc.

The implicit understanding of intensification here, strongly linked to efficiency, also detaches the
discussion from the systemic view adopted in the previous sections of this report: looking at the per kg
or per animal inputs, yield and emissions, i.e. determinants of efficiency, does not allow to account for
the systemic aspects, such as a more broader role of livestock in agricultural production systems; - this
systemic view should not only be purported in the more general discussion and overview of the
previous sections, but also in this more detailed and concrete assessment on how the livestock sector is structured in various contexts and how it may develop further.

Page 37/38: to better understand the reported forecasts on prices and quantities, it would be good to provide more information on the policy context that are assumed for this assessment: e.g. climate policy and how this affects agricultural emissions, etc. – knowing this in some detail would allow to assess, how this development may look like in case other climate policy would be in place. The reported development likely reflects some kind of “business-as-usual” scenario – thus, please describe this in some detail, including the assumptions on policies.

Page 38, lines bottom of the box: are these numbers consistent? If the 110 daily wage rate in cereal production is an average over the year, then the annual income of such a worker is about 40’000 yuans (365*110), much higher than the average annual urban income and even more than the average annual rural income…??

Page 42, line 4: yes, but may add some reference to attempts that go in this direction, e.g. FAO 2013, 2014

Page 40 ff, section 2.6. – This section does not go far enough towards a true “Food systems” approach well beyond “value chains” – it takes up food wastage, trade/markets, ICTs (very shortly); a true food systems approach would rather focus on the interplay of supply/demand and consumer preferences, on the leverage of changes in the latter (e.g. if the projected consumption of animal products would be lower, etc.) – and it should address this in an integrated way – some parts further up in this report already go in this direction, e.g. when discussing projections and emphasizing the relevant discussion in Erb et a. 2009 that combines various approaches from changes in production to changes in consumption (may also refer to Stehfest et al. 2009);

Page 43, line 3ff ICT’s – this could be expanded considerably, - and may not address communication and information only, but also 3D-printing (e.g. Pearce 2015), etc. – may also refer to all the new remote-sensing data that becomes available and will allow improved monitoring of certain activities, states and developments, and will provide improved data on land use and land cover, etc.

Page 43, line 46-50: the content of this paragraph should be expanded in the previous sub-section 2.6 on food systems – then “food systems” would play a more prominent role in section 2.6 (cf. the previous comment).

Page 45, lines 24/25: this is very vague – be attentive to not implicitly assume some overly romantic picture of how agricultural production should be – “fostering liveable rural communities;” - for example, is a different goal than increasing sustainability of the food system – this increased sustainability should be achieved in a way that is acceptable for the current rural communities – but given the drastic change of those communities over the past 50 years, in particular in developed countries, we have to be cautious to not cement the current rural communities in a certain state, thus rather hindering their development. The question is, for each country: “which agricultural production system do we want to have in 30 years?” or so – and this can well include a change towards bigger farms, less rural population – in case these people find decent jobs in the urban centers or urbanization of rural areas takes place in a sustainable manner; - just make such issues explicit when addressing them;

similarly, “and producing food in ways compatible with values.” is very vague – what does this mean? Which and whose values? Is the core of these values a market liberalism or a strong focus on environmental protection? This has totally different consequences and needs to be made explicit and specified. – OK, it is somewhat expanded further down, but could be made more detailed – basically discusses the potential of labels in a context of free choice – but as said, other approaches to live these values may be chosen in a societal process.

Page 45, line 26-28: emphasize “internalization of external costs” when talking about efficiency – this is one thing that has to be made explicit as it is behind many of the adverse developments in agriculture: a lot of the external costs of production and consumption are not internalized.

Page 45, line 29-31: may add: pesticide use and ecotoxicity; water USE and scarcity (not only pollution)
Page 45 ff, section 3 in general: take up these additional points just mentioned above in detail.

Page 46, line 48 – p47, line 2: and what is the conclusion of this observation? Please make this more explicit (cf. the comment above for P45, lines 24/25, regarding “fostering liveable rural communities”); I would suggest that this report should be more concrete and more detailed regarding this challenge of workforce, productivity, and GDP-share.

Page 47, line 32-42: “livable rural communities”: again, be more detailed on what exactly is the problem and the aim – what does mean “livable” and who decides on this? – and is agricultural policy indeed the right approach to achieve this goal? – A key will be the availability of jobs and education – but just keeping much workforce in agriculture may not be a good goal per se – in the long run; given the ITC developments, other job opportunities than agriculture may emerge in rural areas over the next decades; thus, be attentive to not cement the rural communities via agricultural production – and strongly differentiate this discussion in relation to countries, regions affected.

Page 48, line 16-22: please add references for the impact studies; this GMO topic is very sensitive and it should not be dealt with in such a short paragraph only. I would suggest to expand this towards a balanced coverage and discussion of positive and negative impact studies; - in its current form, it implicitly strongly suggests that this approach is an important part of solutions, but this should be discussed in more detail.

Page 48/49, section 3.2.1 this sections covers many important topics, but it does not mention “internalization of external costs” at all – please add a paragraph on this as external costs play a key role in agriculture and its environmental impacts; related to this are economic incentive schemes, such as abandoning distorting subsidies or taxation of polluting inputs. Clearly, this rather tends to increase prices than reducing them, but this discussion also needs to be taken up: should food become cheaper or more expensive? – Consumers and producers will be affected differently and there is a big danger of very distortive intervention; - If the goal is access to food, then the means to have cheap agricultural production may by far not be the most efficient means to achieve this, as it also makes food cheap for those that could afford more expensive food, and as it generally comes with external costs that are borne by the society afterwards, in total decreasing welfare.

Page 49, line 9-12: this is the “rebound effect” of efficiency measures – may add some paragraph to the related literature. It is the core of the argument that only increasing efficiency production without addressing changes in demand may not lead to much improvement.

Page 49, line 13-18: this is interesting and visionary – and it is inlin with some comments made above: which agricultural production system do we want to have in 30 years? I would suggest to take up this question with all its welfare related consequences on rural jobs and livability or rural communities much more explicitly.

Page 49, line 19-26: this paragraph sort of blocks any argument that aims at discussing such fundamental changes in diets – but this is crucial: a true food system approach, the rebound effect mentioned above, etc. make it unavoidable that production changes and consumption changes are discussed together and that the projected increase in animal products should also be strongly questioned – reducing the amount of animal products is one approach with big leverage to reduce environmental impacts from agriculture and need not only be argued via health arguments (cf. also the scenario discussions further up in the report, e.g. Erb et al. 2009, Stehfest et al. 2009).

Page 49 lines 25/26: this comparison of orange juice and milk is not entirely correct and seems to serve to just illustrate that animal products are climate friendly. First, the carbon footprint (g CO2 per 100g product) of milk is HIGHER than of orange juice, also according to the study cited; however, it is correct that the carbon emissions per aggregate nutrient density to climate impact index (NDCI), which they also report in this study, is higher for orange juice: thus, focusing on a range of nutrients instead of the quantity, the emissions of milk are lower; however – it is then important whether the comparison of beverages on the basis of these nutrients make sense – as can be seen for water: water has no nutrients and thus has a NDCI=0 – but still, tap water is a very sustainable beverage with very low carbon footprint (CO2 per 100g; a tenth of that of milk). – Thus, when comparing NDCI, beverages rather seem to be compared as nutrient supply, i.e. food, rather than as liquidity supply (i.e. beverage). – Please be more explicit and transparent with such numbers. – Would also be interesting
how much of the CO2 emissions of orange juice stem from transport and how apple juice would perform in this analysis.

Page 49, line 28 ff: that’s good, the externalities are taken up and their importance is acknowledged – but it would still be good to mention them already earlier, as indicate above.

Page 50, line 43/44 – implicitly, and with the context of the previous sections, this is rather termed as a negative development – but why not? Again, one key aspect is a discussion on which agricultural system will be present in 2030 years – which average farm sizes, etc.

Page 52, line 21: please mention – or make explicit – the emissions related to land use change for feed production and may also mention the soil-c sequestration in grasslands that can make grassland – based production systems carbon neutral (at least till saturation is reached; Soussana et al. 2010) resp. that may contribute to conserving grasslands which, if converted to cropland (where this is possible), would lose huge amounts of CO2 (Smith 2014).

Page 54, line 9: add “grassland based feed” to “increased use of crop residues and by-products”.

Page 55, line 21: reference Havlik et al 2015 is missing in the reference list.

P56, section 3.4.2: a discussion on the CAUSES of the animal diseases would be interesting – please add such, in particular addressing which animal production systems may lead to more or less diseases (e.g. correlation with high productivity levels or not, etc.).

Page 62, line 29-31 – please emphasize the problem of the rebound effect here as well: WITHOUT changing output, such emission reductions are viable, but given that the output increases considerably by 60-70% or so (e.g. based on Alexandratos and Bruin 2012), total emissions from the livestock sector would still increase by 20% or more.

Page 62, line 40: when mentioning c-sequestration in grasslands, may add that this shows a saturation dynamics and thus only delays the need for true emission reductions but cannot offset part of the emissions indefinitely (Smith 2014).

Page 62 line 50: mention “internalization of externalities” explicitly as well, e.g. right after “improve the efficiency of markets” (as it is part of increasing this efficiency – as long as externalities are not internalized, the markets are not efficient, as prices are not reflecting true costs).

Page 62, section 4.3: “pathways…”: please be much more concrete when discussing those; as it is now, it mentions important general aspects, characteristics and types of solutions, but way too general to serve as more concrete policy advice. It is indicated, that this section will be further elaborated – thus please make it more concrete when doing so. The “solutions” part of such a report should not provide general statements that are agreed on by (almost) any reader, while no reader will be prompted to action, but it should rather suggest concrete paths of action, that may be criticized, but in such criticism, alternatives may be developed as well. The only thing that counts is then that concrete action is identified and then implemented – and at least some suggestions for such concrete actions should be provided in such a report – on page 10, it is stated that “the report will offer policy-makers and other stakeholders realistic options to achieve that goal [which is: improving FSN through sustainable agricultural development]” – thus, such realistic options should be presented, and to be realistic, they need a certain level of concreteness and detail.

Or maybe state at the beginning of section 4.3. that these “pathways” line out the challenges ahead and key issues to be decided on, but that concrete options on how to act will be presented in section 4.4.

Page 63 line 55: the subsequent list does not mention consumption side measures at all. But given that the report claims to adopt a food systems approach and that consumption has been a topic above in various places, it should show up here as well. Important aspect of pathways towards the goals of increased FSN through sustainable agricultural development are key consumption measures such as reduced food wastage, reduced consumption of animal products and related dietary change, as well as a discussion on biofuel futures. – Please give those aspects the role they deserve also in this section.

Page 65, line 27 ff: this list is also quite general and should list more concrete measures – e.g. “apply social safety nets” – this is important, but how exactly? Similar: “prepare for and adapt to climate change”; other suggestions remain even more unclear, e.g. “Encourage formation of voluntary
associations in the agri-food chain” – why should this lead to improvements of the kind and size needed? It clearly can, but some motivation and discussion should be provided.

Add to the list: develop and implement insurance solutions to deal with weather and market risks

“Reduce food losses and wastes” can also be seen as a social response, not only an economic; this illustrates, that for each of those bullet points, there should be at least a paragraph with some details and discussion, aiming at making it more concrete. Similarly: “Apply the polluter pays principle” can also be listed as economic response.

Other important aspects that are missing: reduce N inputs and increase N use efficiency; close nutrient cycles; address fossil P use and identify alternative sources (recycling). Reduce pesticide loads, etc.

Demand side measures addressing dietary change towards less animal products are also missing.

When remaining on this level of generality, though, this will not really change much: at least, some assessment of the context in which each suggestion may be implemented and when not should be added, maybe it would be good to have a SWOT-analysis of each of those suggestions. As the scope of the report is global, such suggestions can never be tailored to single countries or regions – but they could be presented with a suggestion on how to assess the viability in a given situation; and this could be addressed via a broad SWOT analysis for each point, collecting and analyzing which barriers it may face, which possibilities for success there are, etc., depending on certain context characteristics. it will for example be difficult to reduce N inputs in a context where governmental default suggestions for N fertilization rates are way too high, etc. Such a SWOT analysis could be taken up as part of the suggestions on how to approach this provided in section 4.5 and it would also allow to identify trade-offs and synergies between different responses (cf. 4.6)

The other thing that can help to become more concrete is to present a wealth of detailed case studies on these different responses (this may come further down in the report?).

Page 68 ff: the case studies are helpful and their structure as well; however, these are entirely focusing on production and a food system approach is lost – no case study on food wastage reduction beyond the production stage or on dietary changes; such should be added. In addition, case studies may need to provide more details to truly capture all aspects; - in the Amazon-case, for example, the issue of indirect Land Use Change is not mentioned at all, although this may be an important driver behind deforestation – thus, the original cause may not be beef production but sugarcane (e.g. Andrade de Sá et al. 2013).

It would be nice to have more case studies and it may be an idea to in addition evaluate those with a SWOT analysis of the various responses involved – they need to provide as much information as possible for a policy-maker to identify, whether a specific response may be an option for his or her country or region, and what the specific strengths, weaknesses, opportunities and threats – i.e. “challenges” may be.

Page 81., line 30-33: not only waste, loss and health reasons may work towards dietary changes, big leverage for environmental improvements exists also for diets with reduced animal products in general (also monogastrics), argued by the amount of animal products that may be supplied without food-competing feedstuffs (Schader et al. 2014).

References:


FAO 2013, Toolkit – reducing the food wastage footprint, , Food and Agriculture Organization of the United Nations FAO.
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Schader, C., Muller, A., El-Hage Scialabba, N., Hecht, J. and Stolze, M., 2014, Comparing global and product-based LCA perspectives on environmental impacts of low-concentrate ruminant production, 9th International Conference LCA of Food San Francisco, USA 8-10 October 2014

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