BRIEF REPORT

4T *don't* stand for tacos: An analysis of food and environmental security considerations in the new Mexican government's agricultural agenda [version 1; peer review: 1 approved with reservations, 1 not approved]

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Abstract

On his first day in office, on 1 December 2018, freshman President of Mexico, Andrés Manuel López Obrador (AMLO) delivered a speech outlining 100 policy priorities of his administration. The present study analyzed the contributions of this government's program relating to food security and their environmental implications, and whether they

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contributed to strengthen the state or improved human security, considering that the poor and marginalized were at the center of AMLO's campaign. In total 45 policy priorities were geared to consolidate the state, while 55 contributed to improving human security. Only six were related to food security, including stipends to food producers and purchasing grains at guaranteed prices, a fertilizer distribution program and subsidies for cattle husbandry and fisheries/aquaculture. These programs contributed to advancing 10 of the 17 Sustainable Development Goals, especially those related to Zero Hunger and Reduced Inequalities. Various policy programs had explicit considerations towards climate change and land degradation, including the exclusion of natural protected areas from agricultural subsidies, and recognized that food production is vulnerable to climate change. The four agricultural programs analyzed may advance AMLO's goal of avoiding food imports, while curbing rural poverty. However, available evidence is mixed regarding animal acquisition loans, which are likely to have adverse environmental outcomes. Finally, the program for developing agroforestry operations is already contributing to deforestation, and further ecosystem degradation is most likely to occur from the introduction of timber and fruit species to natural forests as this program does not preclude the inclusion of recently cleared plots. If human development goals are to be reached, along with fulfilling the international commitments on sustainable development and environmental conservation, policies need to be implemented that simultaneously tend to a booming transnational industry, while bringing forward the rural poor, who amount to nearly half of the country's population.

Keywords

agricultural policy, evidence-based policy, human security, Mexico, national security, socioecological systems, sustainable development goals

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Introduction

On 1 July 2018, third-time candidate, Andrés Manuel López Obrador (AMLO) was elected president of Mexico in a historical election, obtaining 53% of the vote, a result not seen for various decades. AMLO ran on an anti-neoliberal and anti-establishment campaign, dubbing his regime as the “4T” or Fourth Transformation of the Republic, after the wars of Independence (1810), Reform (1857), and Revolution (1910), each one of which redefined Mexico’s history. Indeed, AMLO poses that his administration will be equally transformative, but peaceful.

Immediately after being sworn-in in front of Congress, President AMLO headed to the Zócalo, Mexico City’s historical central square, where he received a crosier from indigenous leaders and delivered a lengthy speech to a numerous crowd that outlined the 100 priorities to be pursued by his administration. Such a government agenda was ratified in May 2019, when the 2019–2024 National Development Plan was issued¹.

Regarding agriculture and rural development, Mexico lives an impossible duplicity. On one hand, Mexico is the 12th largest global food exporter and its agricultural sector contributes ca. 5% of the national gross domestic product, holding the world’s 15th largest economy^{2–4}. On the other hand, 61% of its declining and aging rural population lives in poverty, one third of whom are in extreme poverty, while being tasked with producing food for over 120 million Mexicans⁵. A perception of government abandonment of rural dwellers has become widespread and even commonplace in Mexico, including the notion that peasants are a mere electoral clientele, whose poverty is by design^{6,7}. During his campaign AMLO offered to implement policies to improve rural wellbeing and increase the productivity of small agricultural producers in order to reach food self-sufficiency, invoking food sovereignty as a matter of national security⁸. This paper considers the food and environmental security implications of the new President’s government agenda.

Methods

The authors of this paper participated in an upper division course about “Sustainability and food security,” an elective offered at the Escuela Nacional de Estudios Superiores, Unidad Morelia, Universidad Nacional Autónoma de México. In particular, we are college juniors and seniors majoring in environmental sciences, ecology, and agro-genomic sciences and their instructors.

We utilized the Human Security Framework⁹ to analyze AMLO’s inaugural speech¹⁰, which outlined 100 policy priorities for his administration. This framework is appropriate given its explicit focus on human rights, freedoms, and poverty alleviation, which were central in AMLO’s discourse during his campaign. In brief, we determined the main area of impact for each enunciated policy, according to the human security components of economic, food, health, environmental, personal, community, and political security⁹. Those policies that did not contribute directly to human security were classified according to how they strengthen the State, either by supporting the armed

forces, reducing government spending, combating corruption, or improving government administration¹¹.

For the policies related to food security, we investigated whether the corresponding ministry had officially published the program, either as a concept or with an actual budget allocation for the 2019 fiscal year. When rules of operation existed, the policies were analyzed for their potential repercussions on improving food security, their environmental impacts, and their contributions towards reaching the Sustainable Development Goals. For each program the objectives and rules of operation were identified to gathering evidence from similar programs, either in Mexico or elsewhere to assess their coherence. In addition, potential outcomes for the programs that were implemented where constructed based on the literature and evidence gathered for each program that is already being implemented to assess whether its stated objectives can be reached via the published rules of operation^{12,13}.

Results

In total, 45 of the 100 policies outlined by AMLO were geared to strengthen his government (Figure 1). In particular, three of these policies explicitly consider the armed forces, 12 are austerity measures, 11 policies intend to combat corruption, and 19 are designed to improve government administration. The remaining 55 policies are related to human security. In particular, 30 deal with economic or political security, 8 with environmental security, 7 with food security, 5 with personal security, 4 with community security, and one with health security (Figure 1).

Six of the seven food-related policies already had budget and operational rules for the 2019 fiscal year (Table 1). Five of these programs were issued by the Secretary of Agriculture and Rural Development (SADER) and one was issued by the Secretary of Wellbeing. The seventh policy is an intended generalized ban on the use of transgenic seeds. Because this is not an proper program with rules of operation nor a bill under legislative evaluation, and given its contentious nature, its analysis was excluded from the present work and will be discussed elsewhere.

Subsidies for agricultural productivity

Three of the SADER programs (policies 19–21 from Table 1) intend to improve the agricultural productivity of small producers of food (as opposed to producers of cash crops or forage). In particular, *Producción para el bienestar* (Production for wellbeing) has a budget of MXN\$ 9 billion for the 2019 fiscal year to pursue a main objective of fomenting the production of food, i.e. maize, beans, wheat, and rice, by smallholders of up to 20 hectares.

With a budget of MXN\$ 6 billion, the guaranteed prices program will purchase up to 20 tons of white maize and 120 tons of wheat from “small farmers,” whose production units do not exceed 5 hectares, and up to 15 liters of milk per cow from small and medium production units throughout the year, and will sell such products to final consumers at a subsidized

Figure 1. Contribution of Andrés Manuel López Obrador's 100 government priorities to national or human security. For contributions to national security, the policies were segregated depending on whether they were geared to strengthen the armed forces, to combat corruption, to reduce public spending, or to improve public administration. For the items related to human security, they were assigned to the most relevant component. Numbers in parenthesis indicate the policy count related to each component of national or human security. (See *Extended data* for details on policies and classification).

Table 1. Agricultural items from President AMLO's 100 government priorities. Data are from the 2019 fiscal year Federal Budget and the corresponding rules of operation for each program.

Item	Government priority	Rules of operation	Budget allocation (Millions of pesos) ²⁰	Relevant SDG
19	Small and communal-property farmers will receive bi-annual grants for cultivating food.	14	9,000	1, 2, 5, 10, 13
20	Fertilizer will be distributed since 2019 to prevent soil damage.	15	1,500	2, 8, 10
21	Maize, bean, rice, wheat, and milk will be purchased from small producers at guaranteed prices by the government food distribution companies Diconsa and Liconsa.	16	6,000	1, 2, 8, 10
22	Fisheries will be fostered to improve the livelihoods of coastal and riverside communities.	17	1,036	1, 2, 8, 9, 10, 13, 14
23	Fruit and timber trees will be planted in 1Mha during 2019 and 2020.	18	500	1, 2, 5, 8, 10, 12, 13, 15
25	Unsecured, zero-interest credits will be awarded to small and communal-property farmers for purchasing heifers, cows, and bulls.	19	4,000	1, 2, 5, 8, 9, 10, 13, 15
74	The introduction and use of transgenic seeds will not be allowed.	—	—	—

price. This program is intended to shield basic cereal production from low international commodity prices, as an effort to incentivize their cultivation.

The third program for improving agricultural productivity is a fertilizer distribution program, which, according to the President, will prevent soil degradation (Table 1). This program has a budget of MXN\$ 1.5 billion and will distribute up to 450 tons of fertilizer per hectare, for up to three hectares per participant. The rules of operation consider both the loss of soil fertility from long-term agricultural activity and the noxious effects of excessive or inadequate fertilizer application. For this reason, the program considers the formulation of different fertilizers depending on regional needs, as well as the distribution of biofertilizers where appropriate.

Animal protein for the people

The two remaining SADER programs are designed to increase the amount of animal protein available for Mexican diets. The first one is a program of unsecured, zero-interest loans for purchasing up to 1 million cows and 50,000 bulls or “equivalent” in pigs, goats, sheep, or bees, with an allocation of MXN\$ 4 billion in 2019 (Table 1). While the program allows the disbursement of cash to subsidize the acquisition of different types of animals and breeding related services, the wording of the rules of operation suggests that the preferred currency are actual pregnant females and that the eventual payment will be with their offspring.

With MXN\$ 1 billion allotted for the 2019 fiscal year, the last SADER program is designed to improve the productivity of national fisheries and aquaculture (Table 1). This program considers funding various activities, such as boat maintenance or acquisition of fishing nets and equipment. However, its main focus is the acquisition or maintenance of refrigeration equipment for in-boat and at-the-shore conservation of catches and aquacultural production, thus allowing the capture of larger amounts of fish while increasing their shelf life.

Combating hunger by planting trees

Sembrando vida (Sowing life) is the flagship program of the Secretary of Wellbeing, which has the main objective of reforesting one million hectares with fruit trees or timber species and was announced by AMLO early during his campaign (Table 1). With a budget of MXN\$ 500 million for the 2019 fiscal year, this program will foment the development of agroforestry practices among the poorest communities of 19 states, as long as an adequate environment is available and that each participant allots a 2.5 hectare plot to the program. In return, the participants will be granted a monthly stipend of MXN\$ 5,000, 10% of which must be placed in a savings account. In addition to the stipend, participants will be supplied with plants, agricultural materials, and a toolkit to work the land and have access to the community’s plant nurseries and fertilizer “biofactories.” At the center of this agroforestry program is a community-building intervention called the *Comunidades de aprendizaje campesino* (Communities for peasant learning; CACs), which are groups of 25 participants from selected localities that co-participate in compulsory training, capacity

building, plant propagation, and other communal activities dictated by the program.

Contributions towards the SDGs

The six agricultural policy priorities of the 4T considered in the present work were aligned with 10 of the 17 SDGs (Table 1). In particular, the goals of Zero hunger (SDG 2) and Reduced inequalities (SDG 10) overlapped with the six programs, followed by Decent work and economic growth (SDG 8), which overlapped with the objectives of five of the policies. In contrast, Responsible consumption and production (SDG 12) was only relevant under *Sembrando vida* (item 23 from Table 1), while Life below water (SDG 14) only related to the fisheries program (item 22 from Table 1).

Discussion

During his electoral campaign, AMLO vowed that Mexico will reach food sufficiency during his administration. This would reverse the pattern that emerged after 20 years of the North American Free Trade Agreement, during which the country has been importing increasing amounts of maize, given the high volume and low price of the production in the USA, while developing a vigorous horticultural industry for exports that often contributes with ca. 5% of the country’s annual GDP^{2,4}. In addition, AMLO’s discourse has the wellbeing of the poorest at its core, so by improving the livelihoods of rural dwellers, a major contribution towards poverty reduction should be achieved.

The *Producción para el bienestar* and Guaranteed prices programs are designed to support small producers (with up to 5 hectares under maize cultivation), who collectively contribute with 25% of the national maize production²¹. However, given the low international prices for North American corn, 47% lower than the guaranteed price for the 2019 fiscal year, small production units cannot bear the cost of production from a commercial standpoint²². In fact, the harvest from most of these small production units is usually destined to self-consumption, and the tenants usually have communal land rights²³. Both programs also intend to decrease the dependency on cereal imports and reduce rural poverty via direct cash transfers, with a special focus on southern Mexico, where the higher rates of poverty are concentrated⁵. Both programs can be traced back to previous agricultural policies. In particular, *Producción para el bienestar* is the most recent version of *PROCAMPO* (created in 1994 under the North American Free Trade Agreement) and *PROAGRO Productivo* (issued in 2014), whose main objective was to reduce the income disparity between US and Mexican cereal producers²⁴. In turn, the country had implemented guaranteed price policies since the mid 1950’s, which were precisely substituted by the direct cash transfers of *PROCAMPO*^{24,25}. The liberalization of the agricultural sector has had multiple consequences, including reductions in both the net income of small producers and in the price of cereals^{26,27}.

During his campaign, AMLO announced a program for distributing fertilizer, indicating a main purpose of avoiding soil “damage”. This sounds counterintuitive considering that it has

been widely documented that an overuse of agrochemicals, particularly nitrogenous fertilizer, can lead to soil degradation and widespread environmental damages^{28–30}. However, the rules of operation for the program are explicit in considering both a loss of soil fertility following intensive agriculture and the opening of nitrogenous fertilizer factories. That the State manufactures fertilizer is not a new idea; the refurbishing of a fertilizer plant was announced early in 2013 by former President Enrique Peña Nieto, during his first year in office. However, construction works did not begin until the end of 2014 and were eventually halted due to very strong suspicion of corruption that keeps emerging well into the current administration³¹. Considering that nearly half of the soils in Mexico already have some degree of degradation and erosion³², especially those from agricultural regions, land protection practices should be transferred to producers alongside the agrochemicals, including, for instance, conservation agriculture and intercropping of nitrogen-fixing species, or the use of ferti-irrigation, a component of precision agriculture.

Sembrando vida, the flagship program of the Secretary of Wellbeing, is modeled after the Tosepan cooperative³³, of which the Secretary, Ms. María Luisa Albores, is a member. Indeed, this indigenous organization from Cuetzalan, Puebla has become one of the most emblematic and successful agroforestry operations in the country, including the production of coffee, spices, biofertilizers, ecotourism, and even a credit union that procures and disburses government grants and loans. The latter is precisely the reason why participants of the program have the obligation to save 10% of their stipend, a fraction of such a saving has to be deposited in a trust fund that appears to be what will eventually become the *Banco del Bienestar* (Bank for Wellbeing), which will disburse all the government direct cash transfers. One of the basic requirements of the program is that participants are owners or have legal holding of 2.5 hectares, which is reasonable considering that agroforestry operations can take up to several years to become productive. However, a justification for this program indicates that the target audience are the poorest among the rural poor, which is not necessarily the case, as the poorest usually lack access to land, communal or otherwise. Unlike the SADER programs, *Sembrando Vida* does not have safeguards to prevent that people will clear forest and enroll the resulting “degraded” plots of land in the program. In fact, some reports indicate that the clearing of forests is already underway to enroll these “degraded” plots in the program³⁴. In addition, the fact that groups of 25 participants are required to cooperate through the CACs will require careful implementation. While these community based interventions for rural development have been most successful in places like Cuetzalan with the Tosepan cooperative or the communities in the state of Michoacán of Cherán and Nuevo San Juan Paricutiro³⁵, within the monarch butterfly natural protected area, numerous factors can preclude adequate development. Care must always be taken when replicating and scaling up programs that are successful in certain contexts if they are expected to be implemented successfully elsewhere³⁶. This should be considered by the President especially considering that a multinational version of *Sembrando Vida* is at the core of his intended

intervention in Central America to curb the flux of political and environmental migrants seeking refuge in the USA, whose concentration at the Mexico-US border has led to a humanitarian crisis and has become a source of tension between these countries^{18,37}.

Mexico is currently a net importer of meat and animal products³⁸. In this case, the animal loans program aims to increase the domestic production of animal protein, in compliance with the administration’s objective of reaching food sovereignty through self-sufficiency. Animal products are indeed a main source of protein in many Mexican diets and, in some cases, the primary source of nutrients, especially in arid and semiarid regions where the environment does not permit agriculture, so animal mediated transformation of inedible plants essentially constitutes the only available food³⁹. However, it is unclear whether this kind of program actually works. On one hand, based solely on anecdotal evidence, a number of journalists and pundits have denounced that the animals are usually eaten within a few months, instead of being used for reproduction. On the other hand, animal-rights organizations have frequently raised concerns against animal gifting, including the cost of rearing animals, which can be exceedingly onerous for poor households, who usually cannot afford feed, water, and veterinary care⁴⁰. What are undeniable are the environmental consequences of “loaning” 1 million cows, whose land, water, and food requirements will add on to the resources already required by the 32 million cows currently raised in Mexico^{21,41}.

Despite having access to two oceans, along 10,000 km of the coasts of one third of the 32 states, fish and seafood consumption is relatively low in Mexico²¹. This fuels the perception that the country should increase its fishing efforts to improve the availability of marine sources of protein, including the processing of incidental catches for human consumption⁴². However, fisheries have been depleted worldwide, including in Mexico, which has led to the establishment of aquacultural operations, which potentially have a lower environmental impact than fishing at sea⁴³. By improving the refrigeration capacity of fisheries and aquacultural units, availability of marine protein will increase throughout the year. Care must be taken during implementation of new aquacultural units under this program to avoid environmental damage, which has been amply documented in the existing shrimp farms along the coast of Sinaloa, including from mangrove clearing and by pollution of the surrounding land and sea⁴⁴.

An unexpected finding during our review of the rules of operation of the SADER programs for 2019, was that several of such programs include environmental safeguards to prepare agriculture for impending climate change, but that also explicitly acknowledge that a spillover of agriculture can be damaging to the environment. In fact, *Fomento a la agricultura*⁴⁵ explicitly excludes plots that are already registered in ecosystem service payment schemes or other biodiversity protection programs in order to prevent land transformation. Moreover, participating plots should already be enrolled in a productive-land plots registry, which attenuates the risk of

transforming natural lands for inclusion, a problem that has already been documented for *Sembrando vida*³⁴.

Fomento a la agricultura also considers that Mexican farmers seldom contract agricultural insurance, given high premiums and limited coverage, but also that an impending increase in the frequency and severity of extreme weather events requires better access to insurance that is negotiated in favorable terms for small producers, based on an accurate risk assessment. In this respect, two important lessons emerged from the landing of hurricane Patricia in 2015, the most intense hurricane in recorded history so far. First, that adequate risk assessment and planning are crucial in the event of so called ‘acts of god’. Indeed, no casualties were recorded in Mexico as the hurricane hit land, despite severe damage to the forest, crops and plantations, housing, and infrastructure along its path, especially in the central coast of Jalisco, at the point of landing. The second lesson was actually a pleasant surprise, even for most experts. Indeed, after landing as a category 5 hurricane, Patricia reached the city of Guadalajara, the second largest city in Mexico, as a mere tropical storm. The Sierra Madre Occidental was able to prevent a catastrophe similar to those from the Philippines and Haiti, but only because minimum ecosystem integrity was in place. Otherwise, the hurricane could have been lethal for numerous communities, both coastal and inland, as initially forecasted. In stark contrast, reports of landslides that cut off several villages in the highly deforested municipality of Arteaga, Michoacán (as far as 350 km from the landing point!), illustrate the vulnerability of degraded ecosystems⁴⁶.

Climate change scenarios for Mexico anticipate a reduction in annual precipitation that is likely to be more damaging for agriculture than it would from a mere air temperature increase^{47,48}. Considering that more than half of the country is already arid or semiarid, marginal for agriculture at best, and that up to 80% of agricultural operations are rain-fed, climate change poses a severe risk for those states with agriculture-based economies and for the whole country’s food security^{2,4,23}. In contrast, the few agricultural operations that have access to irrigation consume almost 80% of the country’s available fresh water, most of which is lost during transport along open-air irrigation canals and delivery with inefficient methods such as flooding and large area aspersion⁴⁹. The sole access to irrigation improves agricultural productivity; for instance, maize yields increase by a 3.5-fold in contrast with rain-fed agriculture, thus increasing infrastructure coverage and a simultaneous improvement in agricultural water use efficiency would result in higher yields while potentially reducing the actual demand for water⁴. Water conservation is indeed a national priority and its further privatization should be prevented, as offered by AMLO towards the end of his speech (item 76)¹⁰ and implemented within *Fomento a la agricultura*. This could certainly contribute to a centralized and more efficient water management, which is crucial for a country that, as noted above, has water limitations in ample regions and that is a principal global exporter of embedded water through agricultural commodities⁵⁰.

Final considerations: agricultural policies for sustainable human development

Half of the policy priorities posed by President López Obrador for his administration may explicitly consider the various components of human security, mostly focused on aspects of economic and political securities. Four of the six policies related to food security considered here are designed to improve food production by small farmers. The respective rules of operation appear to advance the objectives of each program and could contribute to a principal goal of the president of reaching food self-sufficiency and sovereignty. However, for their implementation, environmental safeguards should be strictly observed, including the prohibition of clearing more forests and a proper and strict use of agrochemicals. For the case of the unsecured loan program for acquiring reproductive cattle, the evidence indicates mixed results and the program should be carefully monitored, both to ensure that the animals actually increase the national production of meat and for mitigating the environmental degradation that is most likely to result. The most objectionable of the policies was *Sembrando vida*, AMLO’s flagship program for rural development that is also being exported to Central America. This program has already induced the clearing of forests in the states where it has been implemented and the replacement of native species with timber and fruit trees will most likely result in further ecosystem degradation.

A constitutionally mandated wellbeing for the rural poor has implications for national security in the form of water and food security and sovereignty, as well as very strong bi-directional interactions with various components of global environmental change. After all, the most intense and long-standing relationship that humans have had with nature has been through food^{11,51}. Policies and programs are needed that simultaneously tend to a booming transnational industry, bring forward nearly half of the population that has been historically disenfranchised, and reduce biodiversity loss and environmental degradation⁵². In addition, an increasing urban population that is greatly disconnected from production, but which demands larger amounts of higher quality food needs to be taken into consideration. Integrative and evidence-based agricultural policies are indeed necessary for successfully facing these emerging challenges and reaching the goal of food self-sufficiency. Their design and implementation should consider contributions of various scientific disciplines in addition to displaying a profound social sensibility if a substantial improvement of peasant quality of life is sought.

Data availability

Underlying data

All data underlying the results are available as part of the article and no additional source data are required.

Extended data

ResearchGate: delaBarreraetal-4THumanSecurity, <https://doi.org/10.13140/RG.2.2.23419.05921>⁵³.

Data are available under the terms of the **Creative Commons Zero “No rights reserved” data waiver** (CC0 1.0 Public domain dedication).

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Nazirul Islam Sarker

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General comments

The topic focuses on the assessment of the Mexican government's policy related to food security and environmental sustainability. It has practical implications for practioners, policymakers and researchers. But this manuscript requires substantial improvement in some aspects. The author is advised to consider following suggestions for its improvement.

Abstract

Abstract is not well structured. IMRAD style should be followed for structuring the abstract. It is better to avoid some unnecessary and irrelevant texts from abstract like "On his first day in office, on 1 December 2018, freshman President of Mexico, Andrés Manuel López Obrador (AMLO) delivered a speech outlining 100 policy priorities of his administration".

- Key practical implication and recommendations should be included in the last part of the abstract.

Introduction

- The importance of the study has been described nicely but introduction of some key issues like major dimensions of food security, environmental security and sustainability are absent. The authors are advised to add an explanation on "how government policy can influence on main components of food security like food availability, access, utilization and nutritional security as well as environmental sustainability?".
- Research gap is not clear. Can you add at least one paragraph and make clear explanation about research gap?

Methodology

This section is poor. There is no clear indication about the assessment approach. The authors are advised to describe the methodology step-by-step by explain how did you conduct this study. As we know, for policy analysis, main three criteria should be followed like analyzing policy options, implementation and inclusiveness consisting of accountability, transparency and peoples'

participation in the governing process.

- What criteria did you follow to assess the policy for food and environmental security?
- Please avoid unnecessary text and include the main steps of your methodology.

Results

- Results seem correct but it will be fine if authors revised the presentation according to the major dimensions of food and environmental security.
- Figure 1 is fine and self-explanatory.

Discussion

Discussion section seems fine. It will be more logical if author focus on the major dimensions of food and environmental security.

Conclusion

The author is advised to add conclusion section and add limitation under conclusion section.

References

Good.

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Partly

Are sufficient details of methods and analysis provided to allow replication by others?

Partly

If applicable, is the statistical analysis and its interpretation appropriate?

Partly

Are all the source data underlying the results available to ensure full reproducibility?

Partly

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Food security, public policy, governance, resilience, disaster and environmental management.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to state that I do not consider it to be of an acceptable scientific standard, for reasons outlined above.

Reviewer Report 04 December 2019

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María-José Ibarrola-Rivas

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The article links the 100 priorities for AMLO's government to the SDG and the human and governmental security components. The idea is interesting and I think it has potential for a good quality especially one year after AMLO started as president. However, the authors should think carefully what is the aim of the paper: is it really linking to the SDG? Then frame your results in this approach. I give detailed comments below.

Title:

I do not understand what does "*don't stand for tacos*" mean in the context of the paper. It should be clear for the reader, so better explain it in the paper or change the title.

Introduction:

There is not a literature review. You must show what studies have been done about "human and government security" with the human security framework, and with other approaches. Use other studies with similar research aims.

Why do you link them with the SDG? (The answer could be obvious, but you need to clarify it in your introduction).

What is the aim and research question of your study? It should not only be about linking the policies with the SDG, what you want to say? What do you want to question?

Methods:

You use the "Human Security Framework", but you do not describe what it is. Your reference of that framework is a 2-page-link of the "Resolution adopted by the General Assembly on 10 September 2012". There is no framework explained here. Please give a clear description of what it is and how you decide that each of the 100 policy priorities is linked to each component of the national and human security; as well as for the SDG.

Results:

Figure 1: It is a very nice figure.

In the subsidies section: you mention: "450 tons of fertilizer per hectare, for up to three hectares per participant." Check this value, this is enormous. Please check the units.

Also in this section. Could you elaborate more on "the rules of operation for loss of soil fertility and excessive use of fertilizer"? First it was mentioned that use of "subsidies for fertilizer" were to

“prevent soil degradation”. How are they specifying that will be done “depending on the region”?

In the animal protein for the people:

- Why bees? There are no proteins in honey.
- Who will receive these loans for increasing livestock heads?

Discussion:

2nd paragraph you mention that “In fact, the harvest from most of these small production units ... have communal rights” but you do not elaborate why having communal land is a reason to not bear the costs.

About the discussion on the fertilizer policies, in the results you mention that it has to be “depending on the region”. The problem with the fertilizer use is the overuse or misuse of them. So the policy should be done with a local-specific recommendation of what is needed. And indeed, as you mention, promote other practices to reduce soil degradation and erosion.

Describe what is the Tosepan cooperative.

About the livestock policies, cite the journalist that mentioned that animals have been eaten and not used for reproduction.

Mention that “fomento a la agricultura” is a program or a policy (same for the others), and translate it to English. In this respect, maybe you can add them in Table 1. That is easier to refer to.

The paragraph of “fomento a la agricultura” is not clear, you describe a lot about the hurricanes, but not very related with agricultural impacts or insurances, or what has been done in risk management. Also you mention a “First” and not a second etc. Check this sentence and make it relevant for the discussion.

In the discussion, you do not compare to any existing literature doing similar analysis of human or governmental security, or about policies related with SDG. So, this looks more like an essay than a scientific article. I think your paper has a strong potential and is very interesting but make it stronger. The last suggestion for the discussion: you give clear suggestions about the fertilizer policy, could you give specific suggestion to the other policies that you discuss?

Conclusion and discussion:

You do not discuss anything about the SDG. It seems like it was added up by force. You only discuss the components of human and government security. So think if the SDG are what you aim to discuss or not. If you do so, then put all your introduction and discussion in this framework.

Finally, AMLO has been president for a year. Which of these policies have happened or started to take place? Is there something different? Or a preference to one of the components of your Figure 1?

Is the work clearly and accurately presented and does it cite the current literature?

No

Is the study design appropriate and is the work technically sound?

Partly

Are sufficient details of methods and analysis provided to allow replication by others?

Partly

If applicable, is the statistical analysis and its interpretation appropriate?

Not applicable

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Environmental Sciences.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

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