

Office of Communications – February 2022

Real-time evaluation of FAO's response to the desert locust upsurge - 2020–2021 - Phase II

Corrigendum
Updated on 23/02/2022

The following corrections were made to the PDF after it went to print.

Page	Location	Text in printed PDF	Text in corrected PDF
29	Section 4	Recommendation 1. Continue supporting national capacity for survey and control operations, while focusing on extending capacity to remote, hard-to-reach areas and including community groups. As outlined in Conclusions 1–3 above, FAO and its partners made significant contributions to the survey and control capacities of countries across the Horn of Africa, Yemen and Southwest Asia. This included both frontline countries with pre-existing capacity and invasion countries where little capacity existed prior to 2020. Much of this work has been tailored to national contexts, which diverge significantly across the Horn of Africa. Moreover, it should be noted that the political economy of regional institutions in Eastern Africa is more complex than other areas. As such, the country-based capacity building model used to date should be continued. In particular, it is important to prioritize extending capacity to remote and hard-to-reach areas in some countries, and including community and farmer groups in others (see country-specific recommendations below). FAO and its partners should ensure sufficient financial resources and technical assistance are made available for this ongoing capacity strengthening throughout 2021, in order to avoid losing the gains made so far and protecting the region during the forecast evolution of the upsurge throughout autumn and winter 2021.	Recommendation 1. Continue supporting national capacity for survey and control operations, while focusing on extending capacity to remote, hard-to-reach areas and including community groups. As outlined in Conclusions 1–3 above, FAO and its partners made significant contributions to the survey and control capacities of countries across the Horn of Africa, Yemen and Southwest Asia. This included both frontline countries with pre-existing capacity and invasion countries where little capacity existed prior to 2020. Much of this work has been tailored to national contexts, which diverge significantly across the Horn of Africa and Yemen. Moreover, it should be noted that the political economy of regional institutions in Eastern Africa is more complex than other areas. As such, the country-based capacity building model used to date should be continued. In particular, it is important to prioritize extending capacity to remote and hard-to-reach areas in some countries, and including community and farmer groups in others (see country-specific recommendations below). FAO and its partners should ensure sufficient financial resources and technical assistance are made available for this ongoing capacity strengthening throughout 2021, in order to avoid losing the gains made so far and protecting the region during the forecast evolution of the upsurge throughout autumn and winter 2021. Support and capacitybuilding for national surveillance systems should be extended to West Africa on the same basis.
29	Section 4	Recommendation 2. In Ethiopia, increase the engagement of FAO Country Office technical personnel in field level monitoring during desert locust operations. The technical assistance provided by the FAO Country Office to date has had significant impact on improving capacity and processes for survey and control operations. This should be extended as the upsurge continues through autumn and winter 2021, with an emphasis on field level engagement to ensure environmental, health and safety standards, as well as improving quality and efficacy of survey and control operations.	Recommendation 2. In Ethiopia, increase the engagement of FAO Country Office technical personnel in field level monitoring during desert locust operations. The technical assistance provided by the FAO Country Office to date has had significant impact on improving capacity and processes for survey and control operations. This should be extended as the upsurge continues through autumn and winter 2021, with an emphasis on field level engagement to ensure environmental, health and safety standards, as well as improving quality and efficacy of survey and control operations. Depending on the evolution of the locust upsurge, support should be extended into the first quarter of 2022 as needed.
30	Section 4	Recommendation 4. In Kenya, support capacity for surveillance and control in remote areas, particularly in the Rift Valley and Western Kenya. FAO and its partners have significantly strengthened the capacity of national and regional authorities to conduct survey and control operations in Kenya, starting from very little pre-existing capacity. Most areas of Kenya are now served by increasingly robust survey and control operations, including most notably the Mandera corridor in the Northeast of the country, which was the frontline for invasions in Northern Kenya during 2020. Nevertheless, regional capacity could still be enhanced, particularly regarding awareness and reporting systems in remote areas in the West of Kenya. In light of the current low levels of infestation in these regions, FAO should work with the Kenyan authorities to consider sustainable options for improving survey capacity in this region, in order to improve early warning in the future. One option to consider here would be the recruitment of rangeland herder communities and game wardens as scouts as well as local administrative officers to facilitate transfer of information into the country-based desert locust information system.	Recommendation 4. In Kenya, support capacity for surveillance and control in remote areas, particularly in the Rift Valley and Western Kenya. FAO and its partners have significantly strengthened the capacity of national and regional authorities to conduct survey and control operations in Kenya, starting from very little pre-existing capacity. Most areas of Kenya are now served by increasingly robust survey and control operations, including most notably the Mandera corridor in the Northeast of the country, which was the frontline for invasions in Northern Kenya during 2020. Nevertheless, regional capacity could still be enhanced, particularly regarding awareness and reporting systems in remote areas in the West of Kenya. In light of the current low levels of infestation in these regions, FAO should work with the Kenyan authorities to consider sustainable options for improving survey capacity in this region, in order to improve early warning in the future. One option to consider here would be to conduct regular awareness-raising activities to encourage rangeland herder communities and game wardens to report sightings to agricultural departments to allow the dispatch of trained scouts and feed early infestation data into the country-based desert locust information system.
30	Section 4	Recommendation 5. In Pakistan, improve the technical capacity building and refresher training at both federal and provincial levels, with a focus on including community groups and farmers wherever possible, to ensure hatching sites and hopper bands are identified prior to swarm formation. Desert locust activity in Pakistan is now limited, but breeding areas remain in Balochistan, Sindh and Punjab. The emphasis in Pakistan must therefore be on surveillance and early response. Community and farmer groups in rural areas cooperated with the government response in 2019–2020, and have an important role to play in early-stage surveillance. FAO and its partners should support the continued implementation of farmer field schools on desert locust surveillance, as well as improving and augmenting ongoing technical training and refresher courses for both federal and, crucially, provincial level government departments. The quality of community mobilization work in 2020 (e.g. in Balochistan, Sindh and Cholistan) could be improved with FAO support, notably by increasing the involvement of academia, research institutes, media, village leaders and civil society.	Recommendation 5. In Pakistan, improve the technical capacity building and refresher training at both federal and provincial levels, with a focus on including community groups and farmers wherever possible, to ensure hatching sites and hopper bands are identified prior to swarm formation. Desert locust activity in Pakistan is now limited, but breeding areas remain in Balochistan, Sindh and Punjab. The emphasis in Pakistan must therefore be on surveillance and early response. The primary responsibility for field surveillance and early response must remain with the conduct of active field surveys in the desert regions by the Department of Plant Protection and in the Government. In addition to this, community and farmer groups in rural areas cooperated with the government response in 2019–2020, and have an important role to play in early-stage surveillance when and where breeding occurs on farmland and community spaces. FAO and its partners should continue to support the implementation of farmer field schools on desert locust surveillance, as well as improving and augmenting ongoing technical training and refresher courses for both federal and, crucially, provincial level government departments. The quality of community mobilization work in 2020 (e.g. in Balochistan, Sindh and Cholistan) could be further enhanced with FAO support, notably by increasing the involvement of research institutes, media, village leaders and civil society.

31	Section 4	<p>Recommendation 7. In Sudan, continue supporting technical assistance to field level teams as they deal with small-scale desert locust activity during autumn and winter 2021. Despite the significant capacity-strengthening already undertaken at the national departmental level, weaknesses remain at the field level, notably around the capacity of ground control and survey teams in areas such as environmental and health concerns, pesticide storage and empty drum disposal, as well as data collection with new technologies (eLocust3m & dLocust drones). FAO should support improvements in these areas by engaging ground control and survey teams with more technical expert visits, practical training courses and discussion panels to share learning between teams.</p>	<p>Recommendation 7. In Sudan, continue supporting technical assistance to field level teams as they deal with small-scale desert locust activity during autumn and winter 2021. Despite the significant capacity-strengthening already undertaken at the national departmental level, weaknesses remain at the field level, notably around the capacity of ground control and survey teams in areas such as environmental and health concerns, pesticide storage and empty drum disposal, as well as data collection with new technologies (eLocust3m & dLocust drones). FAO should support improvements in these areas by engaging ground control and survey teams with more technical expert visits, practical training courses and discussion panels to share learning between teams. In addition, capacity should be developed in Sudan for the Locust Control Department to conduct their own training courses to train their staff in place of FAO expert visits. FAO can provide training materials for such activities (as detailed further under Recommendation 14).</p>
31	Section 4	<p>Recommendation 9. Open a dialogue with the Ethiopian Ministry of Agriculture regarding the establishment of an operational unit dedicated entirely to locust management, akin to the National Locust Control Department in Sudan. FAO and its partners could offer financial support and technical assistance to build the capacity of such a unit, with the ultimate aim of conducting scout and survey operations to continue at greater volume during recession periods.</p>	<p>Recommendation 9. Open a dialogue with the Ethiopian Ministry of Agriculture regarding the establishment of an autonomous operational unit dedicated entirely to locust management. The unit should be established under the Ministry of Agriculture with regional operations units functioning underneath it. FAO and its partners could offer financial support and technical assistance to build the capacity of such a unit, with the ultimate aim of conducting scout and survey operations to continue at greater volume during recession periods.</p>
32	Section 4	<p>Recommendation 10. In Somalia, continue supporting capacity within the Ministry of Agriculture to enhance national capacity for survey and control, while pursuing new avenues for disseminating locust information and awareness across national and regional authorities. FAO and its partners should look for solutions to improve the national locust information dissemination and awareness raising systems. This could include, for example, a desert locust resource centre within the Ministry, to generate primary data where possible, and disseminate secondary data and forecasts where not, across the Ministry and importantly across all levels of the relevant regional authorities.</p>	<p>Recommendation 10. In Somalia, continue supporting capacity within the Ministry of Agriculture to enhance national capacity for survey and control, while pursuing new avenues for disseminating locust information and awareness across national and regional authorities. FAO and its partners should look for solutions to improve the national locust information dissemination and awareness raising systems. This could include, for example, a desert locust resource centre within the Ministry, to generate primary data where possible, and disseminate secondary data and forecasts where not, across the Ministry and importantly across all levels of the relevant regional authorities. For this to occur, the Government should officially designate a specific Desert Locust Information Officer, who can be trained by DLIS and equipped with RAMSES for data management and analysis. One may be required in Hargeisa (Somaliland) and another at the new Locust Office in Puntland. In addition, regular surveys will need to be undertaken during breeding periods by designated national locust teams using eLocust3m.</p>
32	Section 4	<p>Recommendation 11. In Sudan, maintain support for the operational costs of survey and control in the near-term, to ensure control operations are continuous, timely and unaffected by national budgetary constraints. The substantial and timely financial support provided by FAO and its partners in 2020 played a critical role in covering the operational costs of survey and control operations at a time when the national budgetary resources were constrained. FAO should be prepared to fill budgetary gaps in the national response as the upsurge evolves throughout autumn and winter 2021, in order to ensure that the gains made in 2020 are not lost.</p>	<p>Recommendation 11. In Sudan, maintain support for the operational costs of survey and control in the near-term, to ensure control operations are continuous, timely and unaffected by national budgetary constraints. The substantial and timely financial support provided by FAO and its partners in 2020 played a critical role in covering the operational costs of survey and control operations at a time when the national budgetary resources were constrained. FAO should be prepared to fill budgetary gaps in the national response as the upsurge evolves throughout autumn and winter 2021, in order to ensure that the gains made in 2020 are not lost. A provisional budget must also be elaborated based on observed need, while the necessary technical and financial support should be provided to ensure the autonomy of the NLCU.</p>
32	Section 4	<p>Recommendation 12. Work closely with the Sudanese government to build a well-defined national contingency plan for locust response. Support provided throughout 2020 helped to build medium-term capacity within Sudan by improving the handling of empty pesticide containers, supply of equipment, and the introduction of new technologies including drones and eLocust3m applications. This has significantly strengthened capacity of the Ministry of Agriculture and Natural Resources to respond to the scale of the upsurge in 2020. However, as the current forecasts indicate the likely continuation of the upsurge in Sudan and neighbouring countries, it is important to ensure that a strategic plan for the medium-term is developed in partnership with the national government. The plan should address any anticipated shortages or material needs in the medium-term, areas where training and human capacity can be enhanced, and options for improving the pesticide stock management systems and environment and health standards, particularly for ground control operations.</p>	<p>Recommendation 12. Work closely with the Sudanese government to build a well-defined national contingency plan for locust response. Support provided throughout 2020 helped to build medium-term capacity within Sudan by improving the handling of empty pesticide containers, supply of equipment, and the introduction of new technologies including drones and eLocust3m applications. This has significantly strengthened capacity of the Ministry of Agriculture and Natural Resources to respond to the scale of the upsurge in 2020. However, regardless of the forecasts in Sudan and neighbouring countries, it is important to ensure that a strategic national contingency plan for the medium-term is developed in partnership with the national government. The plan should address any anticipated shortages or material needs in the medium-term, areas where training and human capacity can be enhanced, and options for improving the pesticide stock management systems and environment and health standards, particularly for ground control operations.</p>
34	Section 4	<p>Recommendation 15. Review the entire procurement process for locust upsurges to remove constraints on timely response to future emergencies. While FAO and its partners managed to work around process delays in procurement during the upsurge response, procurement remained the biggest internal constraint for timely response to the survey and control operations. Driving factors reported during Phase II of this evaluation reached far beyond the actions of the central procurement team in Rome and touched on aspects of preparedness, adaptation to supply-side constraints, and the entire process of raising procurement orders from field level through to last-mile delivery. FAO should review its approach to procurement for locust emergencies, to ensure future upsurges are not constrained by similar factors. Options should include:</p> <ol style="list-style-type: none"> i. Increasing capacity in the central procurement team during locust emergencies, indexed against the size of the operational response. ii. Increasing technical capacity in agricultural aircraft deployment within emergency divisions, as part of the wider initiative to strengthen logistics capacity in this area. iii. Working with external providers or partners such as the International Civil Aviation Organization (ICAO) to review tenders for agricultural aircraft procurement during locust upsurges. iv. Ensuring that future aircraft contracts cover regional operations or otherwise include the ability to move between countries easily, so as to facilitate the movement of aerial 	<p>Recommendation 15. Review the nature of the challenges around the supply chain and along the procurement process, to remove constraints on timely response to future locust emergencies. While FAO and its partners managed to work around process delays in procurement during the upsurge response, supply-chain constraints, bottlenecks and weaknesses represented one of the most significant challenges for timely response to the survey and control operations. Driving factors reported during Phase II of this evaluation reached far beyond the actions of the Procurement Function and touched on aspects of preparedness, adaptation to supply-side constraints, and the entire process of raising procurement requests through to last-mile delivery. FAO should review its approach to procurement for locust emergencies, to ensure future upsurges are not constrained by similar factors. Options should include:</p> <ol style="list-style-type: none"> i. Increasing capacity in the central procurement team during locust emergencies, indexed against the size of the operational response. ii. Increasing technical capacity in agricultural aircraft deployment for anticipatory action and emergency responses, as part of the wider initiative to strengthen emergency response capacity in this area. iii. Working with external providers or partners such as the International Civil Aviation Organization (ICAO) to streamline agricultural aircraft (asset) procurement during locust upsurges ensuring the technical soundness and regulatory framework. iv. Exploring the possibility of future aircraft contracts to cover regional operations or otherwise include the ability to move between countries easily, so as to facilitate the movement of aerial

		<p>assets as the upsurge moves and evolves, without the need for separate contracts in each country of operation.</p> <p>v. Increasing – and annually reviewing – the pre-approved supplier lists for all aspects of the survey and control response including pesticides and control equipment. Annual reviews should aim to foster proactive regular engagement with suppliers during non-emergency periods, as a means to maintaining readiness for deployment in an emergency. This should include, inter alia, ensuring that suppliers have direct access to listed assets (such as aircraft), have experience in country, and are able to meet technical requirements and new specifications as and when they are updated by FAO.</p> <p>vi. Establishing long-term agreements with pre-approved suppliers for equipment and pesticides where suppliers have a demonstrated track record of delivery in locust emergencies and where the competition for supply contracts is restricted due to the specialization required.</p> <p>vii. Pre-positioning more non-perishable items (e.g. atomizers for fixed wing aircraft, ground spray equipment, drum crushers) in a global storage facility, managed and maintained by FAO and partners (e.g. United Nations Humanitarian Response Depot (UNHRD) in Brindisi) to ensure appropriate periodicity of inspection and renewal.</p> <p>viii. Reviewing the process and requirements around raising procurement requests to ensure central procurement teams are able to action requests more quickly with less need for revisions and amendments during the crucial early stages of locust upsurge.</p>	<p>assets as the upsurge moves and evolves, without the need for separate contracts in each country of operation.</p> <p>v. Establishing an annual internal cross-divisional meeting mechanism aimed to conduct joint Desert Locust supply-chain and procurement risk analysis, aimed to identify solutions/mitigation measures to improve the effectiveness and efficiency of upsurge responses.</p> <p>vi. Increasing – and annually reviewing – the pre-approved supplier lists for all aspects of the survey and control response including pesticides and control equipment. Annual reviews should aim to foster proactive regular engagement with suppliers during non-emergency periods, as a means to maintaining readiness for deployment in an emergency. This should include, inter alia, reviewing technical specifications and making updates where necessary, ensuring that suppliers have direct access to listed assets (such as aircraft), have relevant experience, and are able to meet technical requirements and new specifications as and when they are updated by FAO.</p> <p>vii. Establishing long-term agreements with pre-approved suppliers for equipment and pesticides where suppliers have a demonstrated track record of delivery in locust emergencies and where the competition for supply contracts is restricted due to the specialization required.</p> <p>viii. Pre-positioning of non-perishable items (e.g. atomizers for fixed wing aircraft, ground spray equipment, drum crushers) in a global storage facility, managed and maintained by FAO and partners to ensure appropriate periodicity of inspection and renewal.</p> <p>ix. Streamlining the process and requirements around raising procurement requests to ensure that these are quickly processed during early stages of locust upsurge.</p>
35	Section 4	<p>Recommendation 16. Increase the flexibility of fast-track procurement rules and processes specifically for L3 emergency contexts relating to locust emergencies, to allow direct procurement from pre-qualified suppliers rather than tenders from multiple bidders. In the specific case of desert locust emergencies, timely procurement can be hampered by the inability of emergency divisions to procure directly from known suppliers, particularly for specialized items such as pesticides, sprayers, or atomizers for fixed wing aircraft. Given the extremely small number of suppliers worldwide that are in a position to deliver such products to specification, the competitive value of open tendering diminishes. At the same time, the urgency created during the early onset of desert locust crises can result in a delay of two to three weeks for open tender, when weather conditions align and make effective locust control extremely difficult. FAO should consider removing the requirement for tendering specialized items during L3 locust emergencies, on the basis of a list compiled by the Plant Production and Protection Division (NSP) of specific equipment and supplies for which the supply market is sufficiently small, and the urgency of delivery is high.</p>	<p>Recommendation 16. Increase the flexibility of fast-track procurement rules and processes specifically for L3 emergency contexts relating to locust emergencies, to allow greater use and streamlining of procurement from pre-qualified suppliers rather than public tenders. In the specific case of desert locust emergencies, timely procurement can be hampered by the use of public tender procedures for specialized items such as pesticides, sprayers, or atomizers for fixed wing aircraft. Given the extremely small number of suppliers worldwide that are in a position to deliver such products to specification, the competitive value of public tendering diminishes. At the same time, the urgency created during the early onset of desert locust crises can result in a delay of two to three weeks for public tender, when weather conditions align and make effective locust control extremely difficult. To streamline its implementation in emergency contexts, FAO should consider increasing procurement of specialized items from pre-qualified suppliers during L3 locust emergencies for specific equipment and supplies for which the supply market is sufficiently small, and the urgency of delivery is high. In addition, procurement procedures under L3 fast-track rules should be further streamlined to reduce lead times resulting from internal clearances.</p>
35	Section 4	<p>Recommendation 17. Document lessons learned from the procurement issues highlighted in the 2020 upsurge, to improve preparedness for future responses. Document the lessons learned around the procurement challenges noted in this Phase II report, to identify areas where new templates and processes can be created that build the institutional memory from this response. Areas such as the interplay between FAO units involved in the contracting, legal review, and technical specifications required for procurement of aircraft for locust control should be explored, and lessons for future crises outlined.</p>	<p>Recommendation 17. Document lessons learned from the procurement issues highlighted in the 2020 upsurge, to improve preparedness for future responses. Document the lessons learned around the procurement challenges noted in this Phase II report, to identify areas where new templates and processes can be created that build the institutional memory from this response. Areas to be explored include the procurement of sprayers and triangulation of pesticide stocks, as well as the interplay between FAO units involved in the contracting, legal review, and technical specifications required for procurement of aircraft for locust control and lessons for future crises outlined.</p>
35	Section 4	<p>Recommendation 18. Review pesticide management procedures at country level across the Horn of Africa, Middle East and Southwest Asia, and work with national governments to overcome country-specific constraints. Whilst significant work has already been done with national governments to improve the safety of pesticide stock management processes, the evaluation team was still able to observe several examples of unsafe pesticide storage during visits to the field. FAO and its partners should review the stock management practices at country level, with an emphasis on improving infrastructure and environmental, health and safety compliance in remote field locations. FAO and its donor partners should ensure that funding is available for infrastructure improvements and technical assistance where it is required, while FAO country offices should follow the country-specific recommendations below.</p>	<p>Recommendation 18. Review pesticide management procedures at country level across the Horn of Africa, Middle East and Southwest Asia, and work with national governments to overcome country-specific constraints. Whilst significant work has already been done with national governments to improve the safety of pesticide stock management processes, the evaluation team was still able to observe several examples of unsafe pesticide storage during visits to the field. National governments in affected countries should review the stock management practices at country level, with an emphasis on improving infrastructure and environmental, health and safety compliance in remote field locations. FAO should support this work through the newly established Locust Pesticide Management System (Locust PMS), while donors should support the sustainability of the Locust PMS into the future. Donor partners should moreover ensure that funding is available for infrastructure improvements and technical assistance where it is required, while FAO country offices should follow the country-specific recommendations below.</p>
37	Section 4	<p>Recommendation 23. Continue the current level of livelihood support, while working with implementing partners to increase diversification and decentralization of the supply process within countries. As noted in Conclusion 4, the roll-out of livelihood support did not begin at full-scale until October 2020, which impacted the timeliness of the initial support for some stakeholders. Nevertheless, since then, support has been generally understood to be of good quality and has made significant contribution to supporting the livelihoods of locust-affected communities in the Horn of Africa. Questions have been raised about the diversity of livelihood support packages available, and the relative merits of centralized versus decentralized supply chains in-country, particularly for livestock assets. FAO should work with its partners in the livelihood response to encourage greater diversity of livelihood support and decentralization of supply where appropriate.</p>	<p>Recommendation 23. Continue the current level of livelihood support, while working with implementing partners to increase diversification and decentralization of the supply process within countries. As noted in Conclusion 4, the roll-out of livelihood support did not begin at full-scale until October 2020, which impacted the timeliness of the initial support for some stakeholders. Nevertheless, since then, support has been generally understood to be of good quality and has made significant contribution to supporting the livelihoods of locust-affected communities in the Horn of Africa. Questions have been raised about the diversity of livelihood support packages available, and the relative merits of centralized versus decentralized supply chains in-country, particularly for livestock assets. This was true despite the flexibility offered to individual country partners to select from a wider regional menu of intervention options. FAO should therefore work with its partners in individual countries to encourage greater diversity of livelihood support and decentralization of supply where appropriate.</p>
38	Section 4	<p>Recommendation 27. In Ethiopia, improve diversification of livestock asset suppliers and seed types. Local regional suppliers of livestock assets should be identified and given priority to ensure quality</p>	<p>Recommendation 27. In Ethiopia, improve diversification of livestock asset suppliers and seed types. Local regional suppliers of livestock assets should be identified and given priority to ensure quality and reduce costs,</p>

		and reduce costs. FAO and its partners could also provide veterinary services to protect animals from the effects of feed shortages on disease exposure. Diversity of seed type and quantity of seed provided per household should also be increased as the response continues into autumn and winter 2021.	whilst FAO should also continue advocating for the opening up of the agricultural input market in order to increase diversification. FAO and its partners could also provide veterinary services to protect animals from the effects of feed shortages on disease exposure. Diversity of seed type and quantity of seed provided per household should also be increased as the response continues into autumn and winter 2021.
39	Section 4	<p>Recommendation 28. Develop a dedicated mechanism for sharing learning and fostering innovation between countries as the response evolves throughout autumn and winter 2021. Several examples of innovation and learning were observed in the response during 2020 and early-2021. Moreover, FAO's own coordination and communication mechanisms have been consistently strong throughout the locust response. More could be done in future to capitalize on these strengths, share learning between countries, and encourage the transfer of innovations between country contexts, e.g. through establishing a dedicated platform to coordinate innovation and learning in locust survey and control across all countries of operation, as well as livelihood protection in the Horn of Africa. Such a mechanism should sit at the global level to ensure lessons transfer between regions, and should have the capacity to:</p> <ol style="list-style-type: none"> i. build a strategic approach to guide country offices as they seek to encourage national governments and regional bodies to innovate in the response; ii. foster and develop relationships with international research institutes and private sector actors; iii. share and coordinate the pre-existing lessons learning from innovative methods piloted in field contexts. <p>Opportunities for research could be progressed through a cross-country learning platform to avoid duplication of effort and ensure widespread and timely sharing of lessons learned. Opportunities for engagement with national governments and regional bodies could include increasing opportunities for the scientific study of innovative approaches including, for example, increased use of biopesticides and novel chemical pesticides in control operations, or wider use of drones and electronic data collection technologies during survey to enhance forecasting.</p>	<p>Recommendation 28. Develop a dedicated mechanism for sharing learning and fostering innovation between countries as the response evolves throughout autumn and winter 2021. Several examples of innovation and learning were observed in the response during 2020 and early-2021. Moreover, FAO's own coordination and communication mechanisms have been consistently strong throughout the locust response. More could be done in future to capitalize on these strengths, share learning between countries, and encourage the transfer of innovations between country contexts, e.g. through establishing a dedicated platform to coordinate innovation and learning in locust survey and control across all countries of operation, as well as livelihood protection in the Horn of Africa. Such a mechanism should sit at the global level to ensure lessons transfer between regions, and should have the capacity to:</p> <ol style="list-style-type: none"> i. build a strategic approach to guide country offices as they seek to encourage national governments and regional bodies to innovate in the response; ii. foster and develop relationships with international research institutes and private sector actors; iii. share and coordinate the pre-existing lessons learning from innovative methods piloted in field contexts; and iv. address the dissemination, uptake, and usage of innovation in locust-affected countries. <p>Opportunities for research could be progressed through a cross-country learning platform to avoid duplication of effort and ensure widespread and timely sharing of lessons learned. Opportunities for engagement with national governments and regional bodies could include increasing opportunities for the scientific study of innovative approaches including, for example, increased use of biopesticides and novel chemical pesticides in control operations, or wider use of drones and electronic data collection technologies during survey to enhance forecasting.</p>
39	Section 4	<p>Recommendation 29. Throughout the region, work with research institutes and the private sector to support innovation in the areas of surveillance, forecasting and control. When suitable populations of desert locust are present, FAO in collaboration with research institutes in the region could conduct field trials with new chemical pesticides and biopesticides to provide field data on mortality rates and time response under a range of conditions. FAO could consider increased support for the use of dLocust drones for surveillance operations in remote and hard-to-reach locations.</p>	<p>Recommendation 29. Across all locust-affected regions, work with research institutes and the private sector to support innovation in the areas of surveillance, forecasting and control. When suitable populations of desert locust are present, FAO in collaboration with research institutes in the region could conduct field trials with new chemical pesticides and biopesticides to provide field data on mortality rates and time response under a range of conditions. FAO could consider increased support for the use of dLocust drones for surveillance operations in remote and hard-to-reach locations.</p>