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FAO/RFI/Drones-2016

**REQUEST FOR INFORMATION (RFI)
Use of unmanned aerial vehicles (drones) for desert locust monitoring and
control services for FAO**

Closing Date: 15th December 2016

Introduction:

The purpose of this Request for Information (RFI) is to obtain preliminary information on the availability of potential vendors to provide solutions enabling FAO, within the context on Desert Locust early warning and preventive control systems, to better its monitoring activities through the use of fixed and rotary wing unmanned aerial vehicles (hereinafter UAV), commonly called 'drones'.

Vast areas of remote desert which include some of the world's poorest countries are regularly monitored for Desert Locust by national ground teams in 4WD vehicles. These areas have no mobile or internet coverage and are several days drive or more from the National Locust Centers. Although satellite-based estimates of rainfall and green vegetation are utilized to reduce and prioritize these large and potentially suitable areas, imagery suffer from omission errors and are often not available in time. Aerial surveys are usually not possible due to high costs and unavailable aircrafts. Consequently, there is a need to supplement these tools with additional technologies to guide ground teams to green vegetation and locust infestations.

The use of fixed and rotary wing unmanned aerial vehicles (UAV), commonly called drones, could be a potential means of improving Desert Locust monitoring, early warning and rapid control, and reducing the costs of survey and control.

The information gathered from this RFI will be used by FAO to confirm or infirm that assumption and to determine the feasibility, scope, timeframe and resources required by FAO.

Specific Requirements

FAO is thus looking for solutions to improve the Desert Locust monitoring, early warning and rapid control system and to reduce the costs of survey and control.

The operational use of drones in nearly 20 frontline countries affected by the Desert Locust is envisaged to consist of the following three-step approach.

Step	Task	Scale
1. Extensive assessment	Confirm green vegetation presence within larger areas of homogeneous or heterogeneous habitats in the desert.	Up to 50-100 km from survey team in the field
<p><i>Objective: a ground team will carry a small, portable, preferably solar-powered or alternatives, long-range fixed-wing drone with them during the survey. This drone should cover a transect of about 50-100 km. The team will program the route itinerary of the drone and launch it. The drone will capture and process information along the route using optical, multi/hyperspectral, thermal and/or other sensors to detect areas of green vegetation and moist soil as well as the presence of any sizeable hopper or adult concentrations (groups, bands, and swarms). Once the drone returns to the survey team, data will have been processed on-board and is to be transferred to eLocust3 (an android tablet currently used for data acquisition by the teams and transmission by satellite). The team will use the results to go directly to the areas of interest or change direction if the results of the flight do not indicate the presence of favorable conditions or Desert Locust.</i></p>		
2. Intensive search	Detect hopper groups, bands, adult groups and swarms and extent of natural vegetation and crops at a potentially infested site	Site-specific, up to 5 km
<p><i>Objective: a ground team could also carry a small, preferably solar-powered or alternatives, portable rotary drone with them during surveys to a specific location identified above or an area that may contain vegetation or locusts. They would launch the drone to get a better idea of the ecological conditions and the locust situation by taking low level images of the area to identify the presence of green vegetation and locusts. If the team stops in an infested area with green vegetation or crops, the drone could look in situ for locusts and also determine the size of the potentially infested area. If the location is less precise, then the team could launch the rotary drone to look for any signs of green vegetation or favorable breeding areas in a minimum of 5 km radius. The drone could also be used to collect information from areas that are not accessible to the ground team due to topography or insecurity.</i></p>		
3. Control	Precision spraying of individual infestations using bio and chemical pesticides at an infested site	Site-specific, up to 5 km
<p><i>Objective: a rotary drone would undertake targeted control treatments of small infested areas (with conventional pesticides or biological techniques) at the site where the team is located or in areas that are difficult to access by ground.</i></p>		

Information requested

Companies already active in this field are kindly requested to provide FAO with the following information (max 5 pages):

- Confirmation of their interest in participating to a future tender for the supply of this type of equipment/services;
- Brief general information of the company, years in business and focus, experience in providing and managing such or similar equipment/services;

- Specific experience in the agricultural sector which could be of benefit within the context of FAO's projects;
- Any particular comments on the scope described above, in particular any technical requirement that would represent a challenge; or possible changes to the requirements that would render the solution equally effective but cheaper to develop/acquire;
- Availability of a solar powered drone or capacity to develop one within reasonable time frame; potential alternatives with the above-mentioned characteristics;
- Critical review of the system requirements and of the proposed technical approach with some indication of the minimum quantity of needed drones to make this solution viable, effective and competitive; adaptability of the solution to other FAO's projects;
- Identification of possible partners contributing to the development of the required solution;
- Identification of any potential issues with regards to legal framework, operational legal requirements, standards and regulations (i.a maintenance, safety requirements, authorizations, etc ...)

Important notes:

- Prices are not required at this stage. **Please do not provide any cost/offer as the Organization intends to issue a tender based on the results obtained through this RFI.**
- The Organization will treat all information received in response to this RFI as strictly confidential;
- The Organization is not engaged toward any further action or compensation by the present RFI;
- All input documents to this RFI are preliminary and are not binding the Organization in any way;
- This RFI is not restricting the future competition for the planned procurement.

Procedure for submission

Interested companies should submit their response by e-mail only to
CSAP-Contracts-Group@fao.org
by the closing date 15th December 2016 cob Rome time.

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