VK 2.6.19

ಕೆರೆ ಸ್ವಚ್ಛತೆಗೆ ನಗರಕ್ಕೆ ಬಂತು ಏರ್‌ಬೋಟ್

ವಿಜಯ ಕರ್ನಾಟಕ

■ ವಿಕ ಸುದ್ದಿಲೋಕ ಬೆಂಗಳೂರು

ಪ್ರವಾಹ ಸಂದರ್ಭದಲ್ಲೂ ಉಪಯುಕ್ತ

ಸಿಎಸ್‌ಐಆರ್, ಎನ್‌ಎಎಲ್ ನಿಂದ ಅಭಿವೃದ್ಧಿ

ಹಲಸೂರು ಕೆರೆಯಲ್ಲಿ 'ಜಲ್‌ದೋಸ್ತ್' ಪ್ರಾತ್ಯಕ್ಷಿಕೆ

ಪ್ರವಾಹ ಸಂದರ್ಭದಲ್ಲಿ ರಕ್ಷಣಾ ಕಾರ್ಯಕ್ಕೆ ಹಾಗೂ ಕೆರೆಯ ನೀರಿನಲ್ಲಿ ಕಳೆ(ಜೊಂಡು ಹುಲ್ಲು) ತೆಗೆಯಲು ಸೂಕ್ತವಾಗುವಂತೆ ಕೌನ್ಸಿಲ್ ಆಫ್ ಸೈಂಟಿಫಿಕ್ ಆ್ಯಂಡ್ ಇಂಡಸ್ಟ್ರಿಯಲ್ ರಿಸರ್ಚ್ - ನ್ಯಾಷನಲ್ ಏರೋಸ್ಪೇಸ್ ಲ್ಯಾಬ್ (ಸಿಎಸ್‌ಐಆರ್ -ಎನ್‌ಎಎಲ್) ಅಭಿವೃದ್ಧಿಪಡಿಸಿರುವ ಏರ್‌ಬೋಟ್ ಅನ್ನು (ಜಲ್‌ದೋಸ್ತ್) ಶನಿವಾರ ಅನಾವರಣಗೊಳಿಸಲಾಯಿತು.

ಸಿಎಸ್‌ಐಆರ್‌ನ ವಜ್ರ ಮಹೋತ್ಸವ ಅಂಗವಾಗಿ ಶನಿವಾರ ಸಂಜೆ ಹಲಸೂರು ಕೆರೆಯಲ್ಲಿ ಏರ್‌ಬೋಟ್ ಅನ್ನು ಸಿಎಸ್‌ಐಆರ್‌ನ ನಿರ್ದೇಶಕ ಡಾ.ಶೇಖರ್ ಸಿ. ಮಂಡೆ ಅನಾವರಣಗೊಳಿಸಿದರು. ''ಕಮ್ಮಿ ನೀರು ಇರುವ, ಪ್ರವಾಹ ಪೀಡಿತ ಪ್ರದೇಶದಲ್ಲಿ ಚಲಿಸುವಂತೆ ಏರ್‌ಬೋಟ್ ಅಭಿವೃದ್ಧಿಪಡಿಸಲಾಗಿದೆ. ಏರ್‌ಬೋಟ್‌ನ ತಳಭಾಗ ಸಮಾನಾಂತರವಾಗಿದ್ದು, ಯಾವುದೇ ಚಲಿಸುವ ಸಾಧನಗಳನ್ನು ಅಳವಡಿಸಿರುವುದಿಲ್ಲ. ಪರಿಣಾಮ ನೀರಿನ ಒಳಗೆ ಮತ್ತು ಮೇಲ್ಭಾಗದಲ್ಲಿ ಏನಾದರೂ ವಸ್ತುಗಳು ಇದ್ದರೂ ಅದರಿಂದ ಏರ್‌ಬೋಟ್‌ನ ಚಲನೆಗೆ ಸಮಸ್ಯೆಯಾಗುವುದಿಲ್ಲ. ಗಾಳಿ ಶಕ್ತಿಯಿಂದ ನೂಕಲ್ಪಟ್ಟು ಮುಂದಕ್ಕೆ ಚಲಿಸುವ ಕಾರಣ ಪ್ರವಾಹ ಪರಿಸ್ಥಿತಿಗಳಲ್ಲಿ ಜನರ ರಕ್ಷಣೆಗೆ ಏರ್‌ಬೋಟ್ ಅತ್ಯಂತ ಉಪಯುಕ್ತ ಎನಿಸಲಿದೆ.

ಕೆಸರು ತುಂಬಿಕೊಂಡಿರುವ ನೀರಿನಲ್ಲಿ, ಕಳೆ ಮತ್ತು ಜೊಂಡು ಬೆಳೆದಿರುವ ಕೆರೆ, ಹೊಂಡಗಳಲ್ಲಿ ಸಾಂಪ್ರದಾಯಿಕ ಬೋಟ್‌ಗಳು ಮುಂದಕ್ಕೆ ಹೋಗಲು ಆಗುವುದಿಲ್ಲ. ಆದರೆ, ಏರ್‌ಬೋಟ್‌ಗಳು ಸುಲಭವಾಗಿ ಪ್ರಯಾಣಿಸಬಲ್ಲವು. ''ಸದ್ಯ ಒಂದು ಮಾದರಿಯನ್ನು ಅಭಿವೃದ್ಧಿಪಡಿಸಲಾಗಿದೆ. ಇದನ್ನು ವಿವಿಧ ಮಾದರಿಯ ಜಲಮೂಲಗಳಲ್ಲಿ ಬಳಕೆ ಮಾಡಿದ ಬಳಿಕ ಬೇರೆ ಬೇರೆ ಸಂದರ್ಭಗಳಲ್ಲಿ ಅಗತ್ಯತೆ ಅನುಸಾರ ಮತ್ತಷ್ಟು ಸುಧಾರಣೆ ಅಭಿವೃದ್ಧಿಪಡಿಸಿ ಉಪಯುಕ್ತವಾಗುವಂತೆ ಮತ್ತಷ್ಟು ಏರ್‌ಬೋಟ್‌ಗಳನ್ನು ನಿರ್ಮಿಸಲಾಗುತ್ತದೆ. ಆದಾದ ನಂತರ ದೊಡ್ಡ ಪ್ರಮಾಣದಲ್ಲಿ ಉತ್ಪಾದಿಸಿ ಸರಕಾರದ ವಿವಿಧ ಇಲಾಖೆಗಳು, ಸಂಸ್ಥೆಗಳು ಮತ್ತು ಅಗತ್ಯವಿದ್ದರೆ ಖಾಸಗಿ ಸಂಸ್ಥೆಗಳು ಕೂಡಾ ಇವುಗಳನ್ನು ಖರೀದಿ ಮಾಡಿ ಬಳಕೆ ಮಾಡಿಕೊಳ್ಳಬಹುದು'' ಎಂದು ಸಿಎಸ್‌ಐಆರ್‌ನ ನಿರ್ದೇಶಕ ಡಾ.ಶೇಖರ್ ತಿಳಿಸಿದರು.

ಕಾರ್ಯಕ್ರಮದಲ್ಲಿ ಸಿಎಸ್‌ಐಆರ್-ಎನ್‌ಎಎಲ್‌ನ ನಿರ್ದೇಶಕ ಜಿತೇಂದ್ರ ಜೆ.ಜಾಧವ್ ಸೇರಿದಂತೆ ಇನ್ನಿತರ ಅಧಿಕಾರಿಗಳು ಉಪಸ್ಥಿತರಿದ್ದರು.

ಏರ್‌ಬೋಟ್ ವಿಶೇಷತೆ

4 ಸಾವಿರ ಕೆ.ಜಿ ತೂಕದ ಏರ್‌ಬೋಟ್‌ಅನ್ನು ಅಲ್ಯುಮಿನಿಯಂನಿಂದ ತಯಾರಿಸಲಾಗಿದೆ. 4.5 ಮೀಟರ್ ಉದ್ದ, 2.4 ಮೀಟರ್ ಅಗಲ ಮತ್ತು 0.65 ಮೀಟರ್ ಎತ್ತರವಿರುವ ಏರ್‌ಬೋಟ್ 100 ಎಚ್‌ಪಿ ಪೆಟ್ರೋಲ್ ಎಂಜಿನ್‌ನಿಂದ ಕಾರ್ಯ ನಿರ್ವಹಿಸುತ್ತದೆ. ಬೋಟ್‌ನ ಹಿಂಭಾಗದಲ್ಲಿ ಕಾರ್ಬನ್ ಫೈಬರ್‌ನಿಂದ ತಯಾರಿಸುವ 3 ಬ್ಲೇಡ್‌ಗಳ ಪ್ರೊಪೆಲ್ಲರ್ ಇರಲಿದ್ದು ಬೋಟ್‌ಗೆ ಚಲನೆಗೆ ಸಹಕಾರಿಯಾಗಲಿವೆ. 40 ಲೀಟರ್ ಇಂಧನ ಸಾಮರ್ಥ್ಯದ ಬೋಟ್‌ನಲ್ಲಿ ಏಕಕಾಲಕ್ಕೆ ಓರ್ವ ಚಾಲಕ ಮತ್ತು ಮೂವರು ಪ್ರಯಾಣಿಕರು ಅಥವಾ ಸಿಬ್ಬಂದಿ ಪ್ರಯಾಣಿಸ ಬಹುದಾಗಿದೆ.

ಕಡಿಮೆ ನೀರಿದ್ದರೂ ಚಲಿಸಬಲ್ಲದು

ಕೆಲವೇ ಇಂಚುಗಳಷ್ಟು ನೀರಿದ್ದರೂ ಚಲಿಸುವ ಏರ್‌ಬೋಟ್‌ಗೆ ಕಳೆ ತೆಗೆಯುವ ಸಾಧನವನ್ನು ಅಳವಡಿಸಲಾಗಿರುತ್ತದೆ. ಜೆಸಿಬಿ ಯಂತ್ರದ ಮಾದರಿಯಲ್ಲಿರುವ ಸಾಧನವು ಕೆಳಭಾಗದಿಂದ ಕಳೆಯನ್ನು ಕತ್ತರಿಸಿ ತೆಗೆಯುತ್ತದೆ.

जल निकाय संरक्षित करेगा 'जल दोस्त'

बाढ़ राहत एवं बचाव कार्य भी निभाएगा अहम भूमिका

सीएसआइआर और एनएएल ने संयुक्त रूप से किया तैयार

एयरक्राफ्ट तकनीक से तैयार किफायती एयरबोट

जल दोस्त की खासियत

- 6 50 किलोग्राम खाली वजन
- 4 हजार किलोग्राम वजन तक चलेगा पानी में
- 4.5 मीटर लंबाई, 2.4 मीटर चौड़ाई, 0.6 5 मीटर ऊंचाई
- 4 सिलेंडर, 4 स्ट्रोक पेट्रोल इंजन
- 40 लीटर टंकी की क्षमता, 38 लीटर तक हो सकता है उपयोग
- 1 हजार एचपी की शक्ति
- 3 यात्री और एक चालक एक साथ बैठ सकते हैं।

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बेंगलूरु. वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद (सीएसआइआर) एवं राष्ट्रीय वांतरिक्ष प्रयोगशालाएं (एनएएल) ने संयुक्त रूप से एक ऐसा एयरबोट 'जल दोस्त' तैयार किया है जो जल निकायों को संरक्षित करने से लेकर आपदा प्रबंधन में बेहद कारगर साबित हो सकता है। एयरक्राफ्ट तकनीक से चालित यह एयरबोट उथले (छिछले) जल स्रोतों में भी चल सकता है और उसमें से घास, अवांछित पौधों अथवा खरपतवार की सफाई कर सकता है।

दरअसल, एयर प्रणोदन प्रणाली से चालित इस जल दोस्त का कोई भी पार्ट पानी के अंदर नहीं होता इसलिए इसके कहीं उलझने की आशंका भी नहीं होती। बाढ़ के समय आपदा राहत कार्य चलाने में यह एयरबोट बेहद कारगर साबित होगा। बाढ़ प्रभावित इलाकों में राहत सामग्री पहुंचाने से लेकर फंसे लोगों को निकालने में इसका उपयोग हो सकता है। छिछले जलस्रोतों में भी उपयोग में लाया जा सकता है इसलिए सीमावर्ती इलाकों में बीएसएफ को जवान भी इसका उपयोग कर सकेंगे। एनएएल ने कहा है कि बड़ी संख्या में ऐसे जल दोस्त की आवश्यकता देश को है।

एनएएल एवं सीएसआइआर के निदेशक जितेंद्र जाधव ने कहा कि देश में काफी झील और नदियां हैं जिन्हें साफ करने की आवश्यकता है। एनएएल ने सामाजिक मिशन के तहत योजना बनाई कि कैसे एयरक्रॉफ्ट तकनीक से इन नदियों और झीलों को साफ किया जा सकता है। चूंकि, साधारण बोट का इंजन जल निकायों में डूबता है इसलिए गाद, घास या खरपतवार आने पर उसमें फंस जाता है और बोट आगे नहीं बढ़ पाता। एयरक्रॉफ्ट तकनीक का उपयोग इस एयरबोट को इस तरह बनाया गया है कि यह पानी की सतह पर चलता है। इसमें लगा हाइड्रोलिक कटर लगा हुआ है जो घास को जड़ से काटता है और उसे निकालकर रख देता है। इस एयरबोट से 20 मिनट में जितना काम हो सकता है उसे 50 लोग 8 घंटे में कर पाएंगे।

उन्होंने बताया कि कनाडा या अमरीका जैसे देशों में जाएं तो इसकी लागत इस एयरबोट की तुलना में 5 गुणा अधिक होगी। चूंकि, स्वदेशी तकनीक से इसका विकास हुआ है इसलिए यह बेहद किफायती है। एयरक्राफ्ट की उच्च तकनीक के उपयोग के बावजूद यह सस्ता है। उन्होंने बताया कि यह एयरबोट एक हजार हार्स-पावर (एचपी) क्षमता वाला है और इसकी गति अधिकतम 30 किमी प्रति घंटे है। यह किसी जलस्रोत में 10 मिनट में 15 मीटर गुणा 15 मीटर क्षेत्र के घास की कटाई कर उसे साफ कर देगा। आने वाले दिनों में निजी क्षेत्रों को इसके उत्पादन की जिम्मेदारी दी जाएगी।

Jaldost, the airboat for flood rescue, weeding

Akram Mohammed, DH News Service, Bengaluru, JUN 02 2019, 00:51AM IST | UPDATED: JUN 02 2019, 00:57AM IST

Jaldost is an airboat which uses air propulsion and thrust vectoring technology for navigation in shallow waters. (DH Photo)

On Sunday, the National Aeronautics Laboratory (NAL) launched Jaldost at the Halasuru Lake in central Bengaluru, which can be used for flood relief as well as for weeding in waterbodies.

Jaldost is an airboat which uses air propulsion and thrust vectoring technology for navigation in shallow waters.

The boat was launched as part of NAL's diamond jubilee celebrations. Speaking at the launch, Jitendra Jadhav, director of NAL, said the improvised airboat can clear weeds in a 15 sq m area in a span of 10 minutes.

"The airboat is constructed using technology used in low-cost aircraft. The propulsion system is above the water," he said.

Since there are no moving parts below the water surface, there is no risk of entanglement with objects under water which are not easily identifiable. This makes Jaldost ideal for life-saving and rescue during floods, he said. According to NAL, Jaldost could be fitted with an add-on attachment for weeding.

The system uses hydraulic power from the engine to cut weeds and are fitted with equipment to scoop them up. A stainless steel cutter is installed with a width of eight feet on the leading edge of the collection scoop.

The airboat had an operational empty weight of 650 kg and floated even in water a few inches deep.

All aboard weed-remover JALDOST at Ulsoor Lake

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A snag led to a jittery start to the JALDOST Airboat that was launched at Ulsoor Lake by National Aerospace Laboratories (NAL) on Saturday. The boat failed to start and so the launch was delayed by a couple of hours. But, once the team fixed the technical error, there was no stopping this cleaning machine.

Airboats use air propulsion and thrust vectoring technology to travel in shallow waters. The JALDOST weighs 650 kg and is to help clear out weeds from the lake as it can travel in weed infested shallow water and on marshy lands. The stainless steel cutter installed in the airboat facilitates cutting of rooted weeds in water bodies. JS Mathur, Chief Scientist, NAL, told BM, "Due to a technical snag, the launch was delayed for some time but it was rectified soon and the launch took place in the evening. This boat is a prototype for more such airboats to be placed in other lakes in the future. We will look for private companies as ours is a research centre."

ANANTHA SUBRAMANYAM K

The JALDOST Airboat was launched at Ulsoor Lake on Saturday

The boat can accommodate three passengers and one crew member.

Clean-up drive

The Ulsoor Lake was a hub of activity on Saturday morning too as the HRWA (Halasuru Residents Welfare Association) in association with Lake Revivers Collective had conducted a cleaning drive here. Anand Malligavad of Lake Revivers Collective headed the drive that gathered almost 1,500 residents of Halasuru. Anand said, "The government and the corporates can only do so much about every lake. The catchment areas are filled with plastic and garbage. We are trying to clean this garbage out."

People of all age groups were there with their gloves and carried garbage bags to clean the lake. One of the residents said, "It is our lake. We have to take steps to keep it clean. This lake has been my go to place for some peace and quiet for more than many years now, I feel like I'm doing my bit in giving back by helping out here."

Anand plans to take this initiative to different states and all over the nation.

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CSIR-NAL'S DIAMOND JUBILEE FUNCTION

By team_clicknow (https://clicknow.in/author/click_admin/) / June 2, 2019

National Aerospace Laboratories (NAL), a constituent of the Council of Scientific and Industrial Research (CSIR), India, established in the year 1959 is the only government aerospace R&D laboratory in the country's civilian sector. CSIR-NAL is a high-technology oriented institution focusing on advanced disciplines in aerospace. The mandate of CSIR-NAL is to develop aerospace technologies with strong science content, design and build small and medium-size civil aircraft and support all national aerospace programmes.

CSIR-NAL is the pioneering laboratory in the country in the civil aerospace sector. It has unique testing facilities like the 1.2m trisonic wind tunnel, the acoustic test facility, and the full-scale fatigue test facility. It has developed the Hansa-3 and Saras civil aircraft, and has new programmes for the Hansa-NG, Saras Mk2, and Regional Transport Aircraft.

CSIR-NAL has made major contributions to the LCA-Tejas programme by developing critical technologies like the composite components for the airframe and the flight control system.

In the last couple of years, CSIR-NAL has successfully transferred technologies to a dozen major industries and MSMEs, to further the "Make in India" mission of the Government of India.

CSIR-NAL celebrates its Diamond Jubilee on 1st June 2019, after completing 60 years of service to the nation. The Chief Guest for the Diamond Jubilee Celebrations is Shri K N Vyas, Secretary, Dept. of Atomic Energy & Chairman, Atomic Energy Commission. The Guests – of – Honour are Shri M M Murugappan, Executive Chairman, Murugappa Group, and Shri Jayant D Patil, Whole Time Director (Defence) L&T. The function is presided over by Dr. Shekhar C Mande, Secretary, DSIR and DG-CSIR.

The Celebrations include release of the Diamond Jubilee Year Book as well as the Annual Report for the year 2018-19. The Chief Guest will also distribute the CSIR-NAL Outstanding Performance Awards to the staff members.

CSIR-NAL's Function on "Successful Commercialisation of Composite Technology developed by CSIR-NAL towards LCA-Tejas IOC Series Production".

National Aerospace Laboratories (NAL), a constituent of the Council of Scientific and Industrial Research (CSIR), India, established in the year 1959 is the only government aerospace R&D laboratory in the country's civilian sector. CSIR-NAL is a high-technology oriented institution focusing on advanced disciplines in aerospace. The mandate of CSIR-NAL is to develop aerospace technologies with strong science content, design and build small and medium-size civil aircraft and support all national aerospace programs.
CSIR-NAL has developed the expertise and state-of-art facilities to design and manufacture composite components for aircraft. Using this capability CSIR-NAL has supplied 20 sets of critical components to HAL for the indigenous LCA-Tejas series production aircraft, jointly with Tata Advanced Materials Limited (TAML). CSIR-NAL and TAML will continue to provide these composite parts for the LCA-Tejas FOC aircraft.
CSIR-NAL has developed the composite technology and complex composite parts for LCA-Tejas during a period of technology denial from other countries. This indigenous expertise has resulted in substantial foreign exchange savings and has a significant socio-economic impact. The successful certification and induction into service of the LCA-Tejas is a big boost towards the 'Make in India' mission of the Government of India.
A function to celebrate the successful commercialization of this technology will take place on 1st June 2019. Dr Shekhar C Mande, Secretary, DSIR, and DG-CSIR, Shri R Madhavan, CMD HAL, Air Marshal Upkarjit Singh, AVSM, Director, IAF-PMT, ADA, and Shri S R Mukherjee, CEO, TAML, will address the gathering.

Inauguration of CSIR-NAL's Skill Development Centre

Towards implementing the "Skill India" Mission of the Government of India, CSIR-National Aerospace Laboratories has set up its Aerospace Skill Development Centre, under CSIR's Integrated Skill Initiative Programme. This Centre will offer a number of skill development and skill upgradation courses in partnership with the Aviation and Aerospace Sector Skill Council (AASSC) to the ITI and Diploma qualified youth, in addition to industry workers. The main aim of these courses is to create the high-quality, industry-ready skilled workforce relevant to current and emerging industry needs in the Aerospace Manufacturing, Assembly, Design & Development and Airlines Operations Sectors. This is achieved through training/re-skilling in areas catering to different National Skill Qualification Framework (NSQF) levels.
The Centre is being inaugurated on 1st June 2019 in the CSIR-NAL premises. Initially, the Centre will offer 5-6 job roles in the Aerospace Manufacturing and Design sub-sectors. The course duration ranges from 4 weeks to 4 months, with an anticipated intake of 150 trainees during the first year. CSIR-NAL's initiative will give a big boost to the Skill Development Mission of the Government of India under NSDC.

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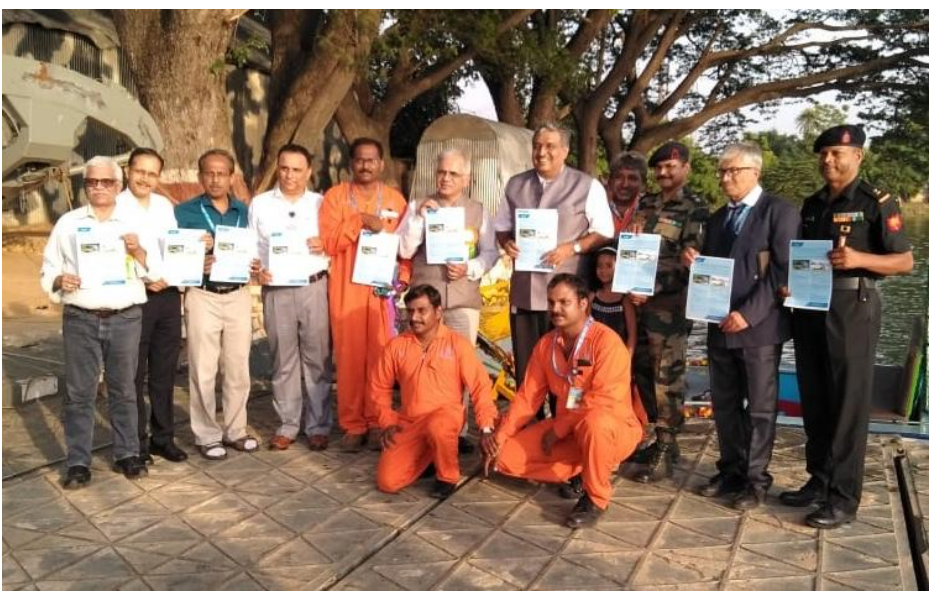
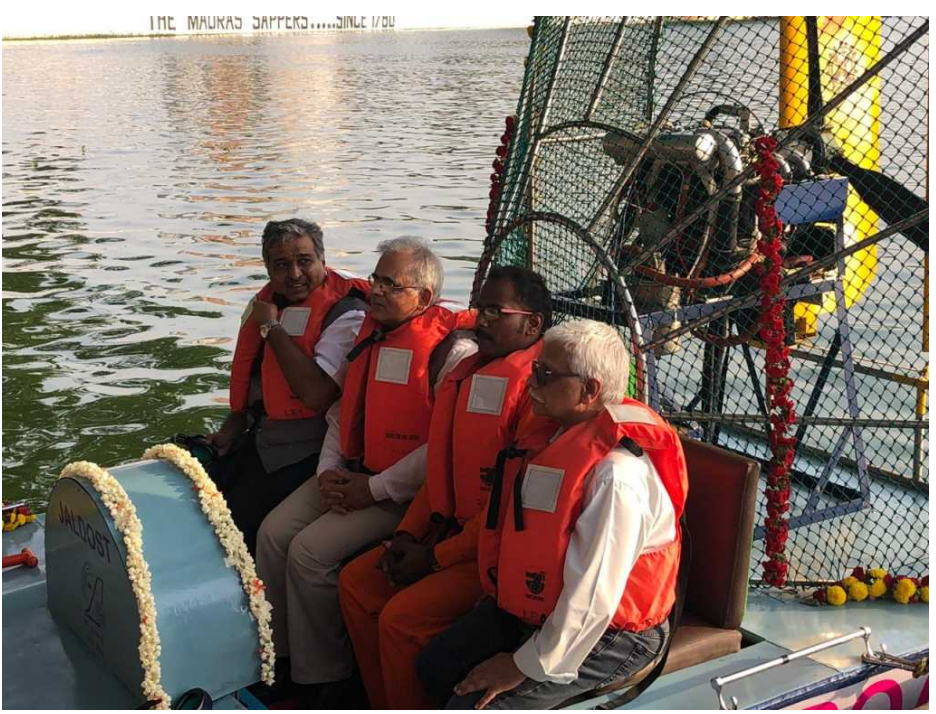
JALDOST

By team_clicknow (https://clicknow.in/author/click_admin/) / June 2, 2019

Airboats use air propulsion and thrust vectoring technology to travel in shallow/flood waters. Because the propulsion system is in the air, there are no moving parts below the water surface and there is no risk of entanglement with objects under water which is not easily identifiable. This feature also makes it ideal for life saving & rescue operations in flood disaster situations. Directional control is achieved using vector thrust technology, by diverting the propeller downwash airflow, using twin metallic rudders made of aluminum skin and welded steel internal members.

Our country has a huge need for systems which are capable of traveling on weed infested water and marshy lands where conventional boats with submerged propellers are unusable. This capability can also be effectively used to remove weeds from lakes and other water bodies, for efficient cleaning for environmental compliance.





Names: from left to right- Mr. Jitendra J Jadhav, Director, NAL, Dr. Shekar C Mande, Secretary,DSIR & DG, CSIR, Mr. Karthikeyan T, Scientist, who drive the Airboat and Dr. Vidyadhar Mudjavi, Director, CSIR- 4PI (NAL' s sister concern organisation).

IBC News Bureau
June 1, 2019
https://www.ibcworldnews.com/csir-nals-diamond-jubilee-function/

CSIR-NAL's Diamond Jubilee Function

CSIR-NAL celebrated its Diamond Jubilee on 1st June 2019, after completing 60 years of service to the nation. The Chief Guest for the Diamond Jubilee Celebrations is Shri K N Vyas, Secretary, Dept. of Atomic Energy & Chairman, Atomic Energy Commission. The Guests – of – Honour are Shri MM Murugappan, Executive Chairman, Murugappa Group, and Shri Jayant D Patil, Whole Time Director (Defence) L&T. The function is presided over by Dr. Shekhar C Mande, Secretary, DSIR and DG-CSIR. The Celebrations include release of the Diamond Jubilee Year Book as well as the Annual Report for the year 2018-19. The Chief Guest distributed the CSIR-NAL Outstanding Performance Awards to the staff members.

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CSIR-NAL is the pioneering laboratory in the country in the civil aerospace sector. It has unique testing facilities like the 1.2m trisonic wind tunnel, the acoustic test facility, and the full-scale fatigue test facility. It has developed the Hansa-3 and Saras civil aircraft, and has new programmes for the Hansa-NG, Saras Mk2, and Regional Transport Aircraft.

CSIR-NAL has made major contributions to the LCA-Tejas programme by developing critical technologies like the composite components for the airframe and the flight control system. In the last couple of years, CSIR-NAL has successfully transferred technologies to a dozen major industries and MSMEs, to further the "Make in India" mission of the Government of India.

தினமலர்

நிறுவனர் : டி.வி. ராமசுப்பையர்

ஆசிரியர் : கி. ராமசுப்பு

Websi

சென்னை, வேலூர், புதுச்சேரி, சேலம், ஈரோடு, கோயம்புத்தூர், திருச்சி, மதுரை, திருநெல்வேலி, நாகர்கோவில் ■ வார

தினமலர்
பெங்களூரு | ஞாயிறு | 2.6.2019

■ ஏரியில் காணப்படும் தேவையற்ற செடிகளை அகற்றும், 'ஏர்போட்'டை, தேசிய விண்வெளி ஆய்வகம், ராணுவத்திடம் ஒப்படைத்தது.
இடம்: ஹலசூரு ஏரி, பெங்களூரு.