Rocket HEMS Bell 222 medical aviation simulator first in the world

With the first aero medical simulator in a Bell 222 in the world, Rocket HEMS is at the forefront of aviation medical training. The company built a medical aviation simulator in a real Bell 222 aircraft airframe, creating an environment as close to the real thing as possible.

Michael Dollenberg, procurement and logistics manager at Rocket HEMS and also full time flight paramedic, is the project leader and responsible for creating this training platform. "This is as close to the real environment as possible. We wanted to build a training platform where you can simulate the sound the engine of the helicopter makes, the rotors moving, the limited space and the flashing with a strobe effect, giving the student a more realistic sense of medical patient treatment during flight."

Dollenberg, a flight paramedic with a history in engineering and tech, explains when you are a flight paramedic, there are all these stressors that are added once you start working. "They have a huge influence on your ability to function. We can now with this simulator, create electrical system failures, simulate a fire in the cockpit, create a gas leak. All of these are ways to help a student train for the real thing."

The Bell222 airframe they used is considered part of the Henley Air Fleet, the biggest fleet of Bell's in the world. The cockpit itself is an exact replica. All the possible usable components were taken out, so that the company has helicopter spares on the shelf, should their engineers need it. "It got to the point where we realised we have all these spare airframes and the aircraft will never fly again. So why not just use the frame? Henley already has a Bell 222 pilot training simulator, so we did the same from a medical perspective."

They are also busy adding high definition cameras inside and Dollenberg would be able to monitor

session. Alternatively, there are people such as Ben Potgieter who can attend to such specialised burning programmes on contract. For other burning work, there are also local people available such as the Chuma Fire organisation, which specialises in grassland, fynbos and firebreak burning and who have practical experience to attend to such burning tasks.

6.4 Working strictly according to a fire prevention plan

As I have discussed earlier, such plans are vital for fire prevention work control and maintenance and detail yearly plans will have to be drawn up by sub-regions and then be controlled by the selected Government organisation, where I suggested the Western Province Provincial Government, preferably CapeNature. I realise that they, at present, do not have the financial ability (nor staff capacity) to take control of such tasks and some serious budgeting will be necessary for them to get involved in controlling the regional fire prevention plan.

Fortunately, CapeNature still have a staff core with the necessary experience to attend to the tasks of developing, creation and maintenance such a regional fire prevention plan for the Garden Route region, by simply extending their existing fire prevention and conservation burning plans, with the added financial requirements of course. However, the decision-making readers may consider otherwise and I will not make this a "must" for the region. As long as this programme is attended to by dedicated managers

6.5 Assessing the 2017 and 2018 wildfire areas for fire prevention needs

As is clearly indicted on Photographs 9 and 10, the regional buffer zones proposed for the Garden Route region cover both these wildfire areas as well as the yet unburned land of the region. Where the Knysna wildfire area is covering a mixture of fynbos and Pine plantation land, the Outeniqua wildfire covers mainly fynbos-covered land.

The organisation responsible for the planning and development of the regional fire prevention plan can thus, quite rightly, request both CapeNature as well as SANParks to assist with the fire prevention plan implementation while the fynbos-covered land under their control recovers from the wildfires. This is until such time when this shrubland can be incorporated with prescribed burning according to the regional fire prevention plan, which will be during 2030 earliest. This will allow them to complete the fire prevention attention on land under their control mainly on the plateau, as yet unburned for the interim period.

It thus appears that CapeNature as well as SANParks should be responsible for most prescribed burning on the Garden Route plateau area as yet unburned and to keep this up to date until at least 2030, when maintenance on this land should be minimal, though still very necessary. However, the attention of the 2017-2018 burned-over fynbos area will be ready for prescribed burning application mainly from the year 2030 onwards.

Both CapeNature as well as SANParks should also assist with regional buffer zone preparation on their neighbours' property, particularly if the owners of this land do not have the capacity to do so. Such cooperation will be necessary to ensure that buffer lines are completed according to plans.

the student's ability from anywhere in the world. There is a computer server in the back, controlling the networking and routing solution. It talks to the cameras on board, as well as the recording system, so that they can record all the video that is happening real time.

"I have a link and can plug it into the office network connection. We can upload that data stream real time elsewhere and live stream it. The whole system is designed to be particularly independent of required resources. As long as I have a power supply, everything will keep on working. We could even take a portable generator and take the machine outdoors."

Dollenberg says the company is working on software that will enable them to change the patients' condition. "If the students manage the patients inappropriately, the blood pressure can drop. We can simulate cardiac arrest. The patients' condition is based on how the students manage their simulated patients and we can watch the students over the cameras. There is no instructor with them to hold their hand."

When you are familiar with the way Rocket HEMS operate, you will know this HEMS provider is not satisfied with only being at the forefront of the best global practices.

"We want to look at what is considered good practice and that is our foundation. We want to take everything that is possible and exceed that expectation. We literally bring definitive, high level emergency care to the scene; therefore you have higher survival rates and better outcomes."

One of the challenges for flight paramedics is the limited space. "You don't have space, the air is dry, there are vibrations, noise, the stroboscopic effect of the rotors. Even paramedics with years of experience on the road, don't understand it, that is why we have now taken it to the next level. Our students can get hands on, immersed in the experience and learn to deal with the stressors first hand. So when they get up there and touch a patient, they know what they are in for."

The simulator will be available to other emergency services and training programmes, should they require it. "It's not something we want to hog for ourselves," says Dollenberg. "It's the first of its kind in the world and the potential is phenomenal."