BY **JENNIFER O. CUAYCONG**

Looking to space

On July 20, 1969, three men made extraordinary history. In a bid to be the first to gain a foothold in a new frontier, civilian Neil Armstrong and Colonel Buzz Aldrin, along with pilot Michael Collins, made the daring leap from science fiction to reality. Armstrong and Aldrin became the first men to set foot on the moon.

Now, more than 37 years later, the awe-inspiring journey remains etched in memory. Uniting the human race for the first time, the first moon landing was a dramatic turning point in man's quest for the stars. The dream lives on in Dr. Buzz Aldrin's untiring efforts and his hopes and vision for the future. The following are excerpts from *BusinessWorld*'s 20-minute exclusive interview with the legendary astronaut himself.

***BusinessWorld*: Dr. Aldrin, could you please tell us more about your role in *CNN Future Summit*?**

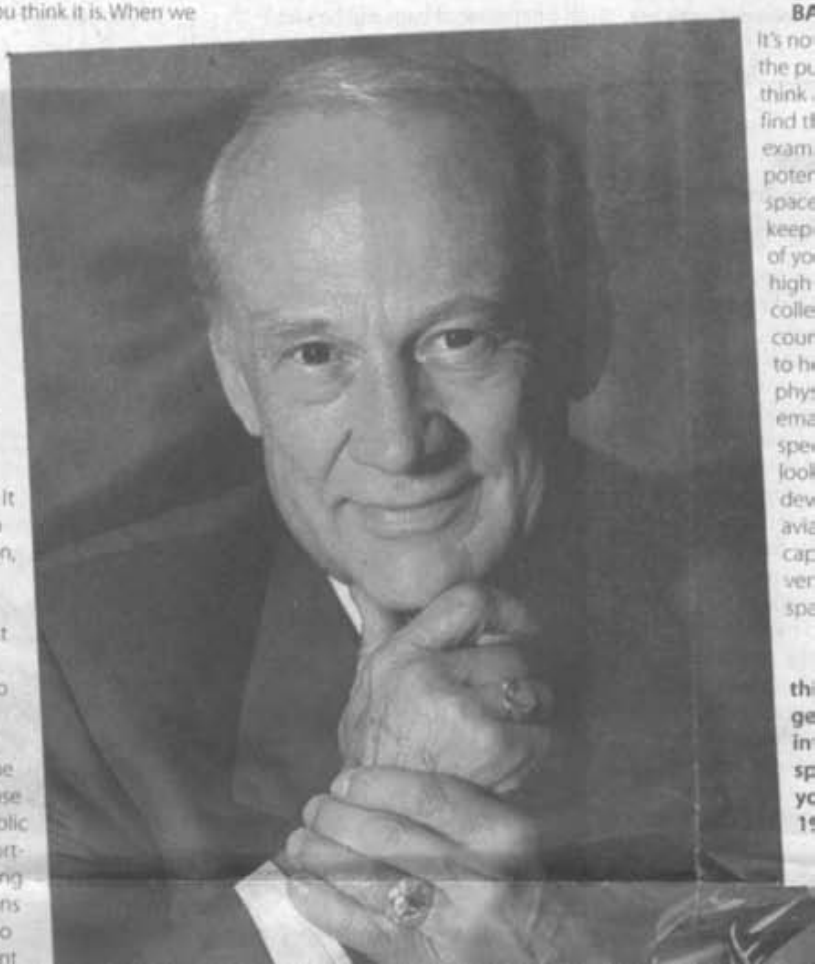
Buzz Aldrin: Well, I'm going to be representing exploration, perhaps from a seasoned view from the past. What we intend to do in the future [in terms] of exploration [will admittedly be] difficult because of the transportation costs. [But] before even being an astronaut, I sort of challenged myself to improve the means of transportation. I did my studies at MIT — where my father also received his doctor's degree; actually before he went to the Philippines, he had studied at MIT — on joining things together in space, what we call rendezvous in space by human beings. More recently, I've looked at transportation methods involving continuously orbiting spacecraft between Earth and Mars, coming back, continually going from Earth to Mars to Earth to Mars in a six-month interval.

BW: I know that you've probably been asked this same question a thousand times, and I apologize for asking it, but on behalf of your fans here in the Philippines, could you please tell us a little more about your experience of actually walking on the space?

BA: Well, we are putting people in space. There are people up in the space station right now and this station has been occupied for quite a few years.

BW: Yes, but habitation and tourism seems to be a little more far-off in the future.

BA: That's because it's much harder than you think it is. When we finished going to the moon, people who put together those programs made the comment to themselves and others that, in the future, they'd try and do it again, they're going to find out just how difficult it was. It was difficult to go to the moon, and we succeeded in doing that. Just because we made it look so easy doesn't mean that we would continue to support those things. The public was not supportive of continuing to send missions to the moon, so the government



we would like to do.

BW: What is your vision of future space exploration?

BA: My vision is to enable more and more people to experience the aspects of space travel and I'd like to see different ways of getting to Earth's orbit, not just an American way, and a Russian way, and a Chinese way. I'd like to see developed a special way that we can take people and cargo off into space and make a profit by doing that.

BW: The early years of space exploration were marked by a race between the superpowers of that time. Today, what do you think motivates the space program?

BA: It's not quite as competitive as it was before. We're trying to do the best with what we've got and to improve things. In retrospect, we might say that we could have done things differently, but we don't have

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Philippines, could you please tell us a little more about your experience of actually walking on the moon?

BA: Well, I had my first space flight 40 years ago. I helped to pioneer and to understand space walking successfully on that flight. That is a good deal more difficult than moving around on the surface of the moon. We found that walking on the moon was very easy; it was almost like operating in slow motion. The dust on the moon is very, very fine powder, almost like talcum powder, and it's very loose, very close to the surface, but then it becomes very compacted, even though it's still relatively loose, as you get down deeper.

Looking toward the horizon, you can see the horizon curve away so that you know that it's something spherical. Because the sun is so bright, when it's behind you, you look down the sun and you see a very bright halo around the shadow of your helmet. The color is pretty much all gray, [and] your eyes can't see any stars in the black sky.

BW: I can only imagine how remarkable that experience must have been. But why do you think there was such a long lag time between the time you set foot on the moon and the realization of the dream of human presence in

BUZZ ALDRIN today (above) and 40 years ago during the lunar landing mission (right). The photo was taken by astronaut Neil Armstrong, commander, prior to the moon landing.
NASA photo

to send missions to the moon, so the government decided not to do that anymore, and we used that equipment to put up space stations, while we were hoping to build something that would be easier to get into space.

BW: But that hasn't stopped your dream of future space exploration.

BA: We're going back to exploration again after experimenting in Earth's orbit with a complicated shuttle system and a complex space station. Now that we've done that for the other partners to continue to use — the European partners, Japan, Russia, India and the others will use that space station — [we're] going to return to exploring and setting up the objective of hopefully going to Mars sometime in the future, and the best way to go to Mars is to develop the techniques by going back to the moon. So that's what we're trying to do. It is not an easy thing to do; it's not a cheap thing to do, and it requires great resources and sacrifices by people. It's very visible, and even though it's just about seven-tenths of one percent of our national budget, it appears to many people to be a very extravagant thing. The funds are limited to be able to develop what the luxury of doing many different things at the same time. We have to make decisions as to how best to spend our resources over the next 10, 15, 20 years and, hopefully, we'll make wise decisions.

BW: Do you think that the dream of a space accessible to all will ever be possible?

BA: I think a lot of people would like to believe that that's going to be easy to do, but it's very difficult.

BW: Critics of the space tourism program counter that with so many problems here on Earth — poverty, diseases, wars — why do we even bother to look at the stars? If you can speak to them, what can you say to convince them otherwise?

BA: I always look at the stars whenever I can. I think that's part of human nature to want to do things

An interview with Dr. Buzz Aldrin

that we see are possible. You want to experience varieties of living conditions. I think there's an inspiration when you look at the writings and the movies that portray human beings going somewhere. [Although] we possibly may say, well, that's just too difficult to do, we just have more problems to solve back here, we could put the money that we spend on space and we wouldn't solve all the problems back here at all. [It'll be] taking away the inspiration of the younger people, that [which] inspires them to want to be a part of understanding technology, engineering, sciences, and investigating things that we don't know. We need to cultivate that fire in young people in their educational pursuits, and space [exploration] does a tremendous job in doing that.

BW: Is space education part of the curriculum in the United States?

BA: Yes, I think it is. It's not spelled out in the public schools, but I think all of the teachers find that using examples of the potential of going into space is very useful in keeping the attention of young people. In high school and college, specific courses are set about to help explain physics and mathematics, and then specialize into looking at the development of aviation and or into capabilities of venturing into space.

BW: Do you think the younger generation is as interested in space as the youth were in 1969?

BA: I don't

passengers are ready to pay up to $20 million for a seat in a commercial space flight sometime in the foreseeable future. Do you think that commercial enterprise will be a viable source of funding for more future space travel? And how do you think we can bring down the costs of space travel to a more realistic level?

BA: I hope there will be opportunities for people other than just fly on available seats with the Russians. I hope we'll be able to do that in the United States. It's not going to be easy. It's not something that follows very quickly from sub-orbital flight. Many hundreds of times, energy is needed to get to 17,000 miles per hour with a spacecraft that can take a sufficient number of people. You obviously can't spend $100 million and take only one person into space. You need to take enough people, and the more people you take, the more expensive it's going to be. I do think we need to [have] government lead in partnership with the private sector, perhaps developing a spacecraft by the private sector but using rockets that have been subsidized by the government and increasing their flight rights to the benefit of the government and private sector.

BW: You have your own project, a small reusable rocket called StarBooster. Can you tell us more about it?

BA: We've been working on ways to replace the solid rockets that were used on the shuttle for 10 years or more. Our method of doing that was to combine an existing liquid rocket with an airplane by putting the rocket inside the airplane and then bringing it back and landing on the runway. The rocket, instead of falling into the ocean, can be brought back and separated from the airplane, replaced with a recently inspected and qualified rocket so it can fly again. It's similar to the ways that jet aircraft change the engines and then use the airplane with a refurbished engine.

BW: Do you think that the

BW: If we all agree that launching commercial manned flights to space is a definite possibility in the near future, what do you think should we prioritize first in embarking on such a grand project?

BA: We should figure out ways to reduce the costs of getting into orbit. Cost is very high, and [there is need] to reduce that cost and still [keep space exploration] as safe as possible.

BW: I understand that you also do a lot of deep-sea exploration on the side.

BA: I've had the opportunity to go down in a submersible to see the *Titanic*, and it's all different from my original ventures into the ocean, like scuba diving, which I started back in 1957.

BW: Having seen both, how can you compare space with the unexplored depths of the ocean? If space is such an attractive tourism destination, can the same be said for the deep seas?

BA: I think we need to do both. In both extremes of going into space and the deep seas, we need to support the humans going into hostile environments. The deep sea is also a very hostile environment, with enormous pressures as we go deeper and deeper, and the coldness of the ocean.

BW: On a personal note, you fought in the Korean Conflict and you went to space. Do you consider yourself a particularly brave person?

BA: I saw opportunities to participate and serve my country at the same time. It just developed as I became a fighter pilot. Fighter pilots at that time were needed in Korea, and I went to Korea and did the best job that I could over there. Then, as other opportunities to enhance my professional education and continue to fly aircraft came, these opened up the possibility of flying for the space program, which I did. I've just been looking for opportunities to improve experiences for myself and help

think so. I think there were new pioneering things happening in the '60s that caught their attention, and today, the movies seem to make space [exploration] look like it's such an easy thing to do. When difficulties arise, we think that that's an unusual thing. It's a very complicated thing, having the rockets put all that energy into a spacecraft with human beings in it and get into space. It's a very difficult thing. Many things have to happen correctly, and that's why it's taken so long to develop those capabilities.

BW: Right now, potential project on a larger scale in the future?

BA: Something similar to that, I'm sure, will come along in 10 to 15 years. It's unfortunate that some of us have just had ideas that are a little bit ahead of our times.

BW: You said, sir, in an interview in 2003, and I quote, "NASA is still living with the idea that the primary purpose of the space program is science." How do you think that has changed in the past few years? Does such a perspective limit the potentials of space tourism?

BA: If the primary purpose is always just science, then we don't need people necessarily to do that. We can do that with robots. That's true in operations close to the earth and perhaps on the moon, but if we want to have humans go to Mars, we have to prepare by learning long-duration flights in the Earth's orbit and flights to the moon so we'll understand how to send humans. If we're not sending humans into space, then there certainly won't be any opportunities for tourism in space, and I think that people want to do that. To say that it's going to happen other than helping the Russians to fill up a vacant seat and help pay for the rocket, that's not what I would call tourism. That's opportunism.

country was doing.

BW: The generation who did not live in your time of space exploration missed out on a great opportunity to witness the marvels of space. Can you speak a little, as one of the elite few in the entire world to have such an experience, on what lessons you have learned from your brief time in space and on the moon?

BA: There were very few of us. Twenty-four human beings were given the opportunity to go to the moon. It takes a lot of preparation and a lot of dedication. I think that there are a lot of people in the future who would like to do that in the pursuit of an expanded space program that takes us to increased capabilities for human experiences.

(CNN Future Summit, hosted by Richard Quest, aired yesterday, Nov. 23. There will be repeat showings on Nov. 24, 6 a.m., 11 a.m and 6 p.m.; Nov. 25, 9 p.m.; Nov. 26, 6 a.m. and 7 p.m.; Nov. 27, 6 a.m.; Dec. 31, 8 p.m. and Jan. 1, 4 a.m. Dr. Aldrin was joined by Anousheh Ansari, the world's first female space tourist; Ian Pearson, British Telecom Laboratories' futurologist; and Lino Guzzella, a designer of fuel-efficient cars, in a discussion on how lives will be dramatically changed by advancements in the world of travel.)