

features

On a mission to Mercury

'BepiColombo' is on its way to probe the mysteries surrounding the smallest planet in our solar system

AFP | Paris, France

Is Mercury's core liquid or solid, and why -- on the smallest planet in our solar system -- is it so big? What can the planet closest to the Sun tell us about how our solar system came into being?

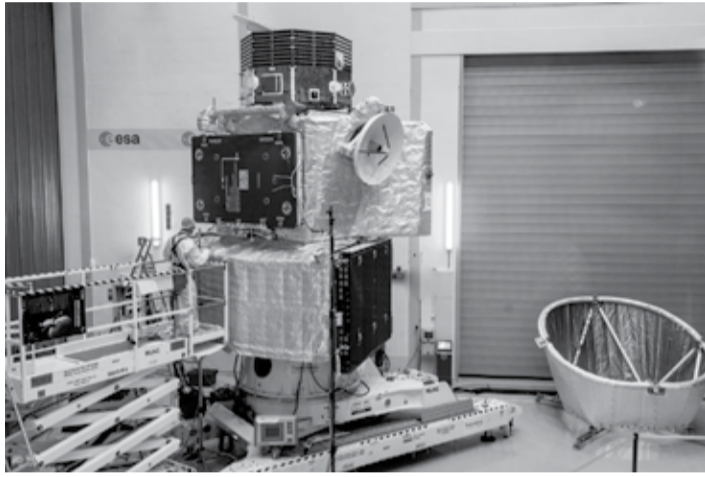
An unmanned European-Japanese space mission, dubbed BepiColombo, blasted off early Saturday morning from French Guiana, to probe these and other mysteries.

"BepiColombo is coming like a white knight with better and more precise data," said Alain Doressoundiram, an astronomer at the Paris Observatory.

"To understand how Earth was formed, we need to understand how all rocky planets formed," including Venus and Mars, he said.

"Mercury stands apart and we don't know why."

First, however, the suite of instruments on board the Ariane 5 rocket will have to travel seven years and nine million



The ESA's Mercury spacecraft, the BepiColombo Stack configuration standing in position at a test facility in Spijknesse

kilometres (5.6 million miles) to reach their destination.

In a statement after the launch, ArianeGroup said the satellite had successfully escaped Earth's gravity field and was beginning its long journey where it will reach speeds of up to 40,000 kilometres (25,000 miles) an hour.

According to Pierre Bousquet, an engineer at France's National Centre for Space Research and head of the French team contributing to the mission, Mercury is "abnormally small," leading to speculation that it survived a massive collision in its youth.

"A huge crater visible on its surface could be the scar left

over from that encounter," Bousquet said. Finding out if this is true is on BepiColombo's "to do" list.

Going hot and cold

This scenario would explain why Mercury's core accounts for a whopping 55 per cent of its mass, compared to 30pc for Earth. Mercury is also the only rocky planet orbiting the Sun beside our own to have a magnetic field.

Magnetic fields are generated by a liquid core but given its size, Mercury's should have grown cold and solid by now, as did Mars.

This anomaly might be due to some feature of the core's composition, something BepiColombo's instruments will measure with much greater precision than has been possible so far.

On its surface, Mercury is a planet of extremes, vacillating between hot days of about 430 degrees Celsius (more than 800 degrees Fahrenheit) to super-frosty nights of minus 180C

(minus 290F). Those days and nights last nearly three Earth months each.

Earlier missions have detected evidence of ice in the deepest recesses of the planet's polar craters.

Scientists speculate that this may have accumulated from comets crashing onto Mercury's surface.

Lashed by solar winds

Mercury is 58 million kilometres (36 million miles) from the Sun, nearly three times closer than Earth.

"The planet is whipped by solar winds," a constant torrent of ionised particles bombarding the surface at 500 kilometres per second, said Bousquet.

The scientists will be able to study the impact of these winds -- 10 times stronger than the ones hitting Earth's atmosphere -- on Mercury's magnetic field.

The BepiColombo mission will deploy two spacecraft. The Mercury Planet Orbiter, built by ESA, will investigate planet's sur-

face and interior composition.

The Mercury Magnetospheric Orbiter, made by the Japan Aerospace Exploration Agency, will study the region of space around the planet that is influenced by its magnetic field.

The mission will also look for tectonic activity, and seek to understand why spectroscopic observations show no iron even if it is thought to be one of the planet's major component elements.

Compared to Mars, Venus, and Saturn, Mercury has barely been explored. Only two spacecraft have ever paid it a visit.

NASA's Mariner 10 did three flybys in 1974 and 1975, providing the first up-close images. More than 30 years later, NASA's Messenger did the same, before settling into orbit around Mercury in 2011.

The new mission is named after Giuseppe (Bepi) Colombo, a brilliant Italian mathematician and engineer who first understood the relationship between Mercury's rotation and orbit.

NATIONAL HOTELS COMPANY (B.S.O)

INTERIM STATEMENT OF FINANCIAL POSITION 30 SEPTEMBER 2018 (REVIEWED)

STATEMENT OF FINANCIAL POSITION				STATEMENT OF PROFIT OR LOSS				STATEMENT OF CASH FLOWS				
	30 September 2018	31 December 2017		Three months ended 30 September 2018	Three months ended 30 September 2017	Nine months ended 30 September 2018	Nine months ended 30 September 2017		Nine months ended 30 September 2018	Nine months ended 30 September 2017		
	Reviewed	Audited		2018	2017	2018	2017		2018	2017		
	BD	BD		Reviewed	Reviewed	Reviewed	Reviewed		Reviewed	Reviewed		
ASSETS												
Non-current assets												
Property, plant and equipment	73,610,558	70,621,555	Gross operating revenue	1,622,236	1,637,994	4,625,583	5,683,457	OPERATING ACTIVITIES	724,267	1,775,951		
Investment in an associate	7,231,991	7,709,859	Gross operating costs	(1,167,057)	(1,178,783)	(3,409,763)	(3,635,550)	Profit for the period				
Non-current investments	2,519,669	4,458,312	GROSS OPERATING PROFIT	455,179	459,211	1,215,820	2,047,907	Adjustments for:				
Total non-current assets	83,362,218	82,789,726	Net investment income:					Depreciation	(1,525,170)	1,543,606		
Current assets												
Inventories	70,432	90,846	Share of profit from an associate	411,194	430,240	1,093,222	1,204,391	Fair value gain on investments at fair value	1,093,222	(1,204,391)		
Current investments	2,048,488	44,233	Dividend income	62,740	62,124	171,667	168,329	Through profit or loss - net	(171,667)	(168,329)		
Trade and other receivables	553,053	1,027,929	Interest income	15,396	39,318	77,181	125,669	Interest income	(77,181)	(125,669)		
Bank balances and cash	200,220	3,188,049	Fair value gain on investments at fair value through profit or loss - net	3,486	2,406	4,255	5,340	Interest expense	37,008	89,480		
Total current assets	2,872,193	4,351,057	Miscellaneous income	83,427	61,811	243,749	193,407	Provision for employees' end of service benefits	74,346	50,095		
TOTAL ASSETS	86,234,411	87,140,783	Depreciation	(508,390)	(516,133)	(1,525,170)	(1,543,606)	Operating profit before working capital changes	1,014,466	1,955,403		
EQUITY AND LIABILITIES												
Equity												
Share capital	11,025,000	11,025,000	General and administration expenses	(149,059)	(83,701)	(518,787)	(335,921)	Working capital changes:				
Treasury shares	(94,726)	(94,726)	Financial charges	(11,471)	(23,289)	(37,670)	(89,565)	Inventories	20,414	(18,755)		
Statutory reserve	5,512,500	5,512,500	PROFIT FOR THE PERIOD	365,502	431,987	724,267	1,775,951	Trade and other receivables	453,170	(652,190)		
General reserve	2,190,079	2,190,079	BASIC AND DILUTED EARNINGS PER SHARE (in fils)	3	4	7	16	Trade and other payables	(220,059)	(86,622)		
Revaluation reserve	31,206,911	31,206,911	STATEMENT OF OTHER COMPREHENSIVE INCOME									
Investment revaluation reserve	1,902,457	1,841,100	Three months ended 30 September									
Share of reserves of associate	78,936	7,183	2018									
Retained earnings	31,049,604	30,368,180	2017									
Proposed dividend	-	1,091,747	2018									
Total equity	82,870,761	83,147,974	30 September									
Non-current liability												
Employees' end of service benefits	315,627	431,406	2018									
Total non-current liability	315,627	431,406	2017									
Current liabilities												
Trade and other payables	2,190,359	2,318,188	30 September									
Current portion of term loan	-	1,243,215	2018									
Bank overdraft	857,664	-	2017									
Total current liabilities	3,048,023	3,561,403	30 September									
Total liabilities	3,363,650	3,992,809	2018									
TOTAL EQUITY AND LIABILITIES	86,234,411	87,140,783	2017									
STATEMENT OF CHANGES IN EQUITY												
	Share capital	Treasury shares	Statutory reserve	General reserve	Revaluation reserve	Investment revaluation reserve	Share of Reserves of associate	Retained earnings	Proposed dividend	Equity		
	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD		
As at 31 December 2017	11,025,000	(94,726)	5,512,500	2,190,079	31,206,911	1,841,100	7,183	30,368,180	1,091,747	83,147,974		
Transfer to retained earnings on adoption of IFRS 9 by an associate	-	-	-	-	-	-	42,843	(42,843)	-	-		
As at 1 January 2018	11,025,000	(94,726)	5,512,500	2,190,079	31,206,911	1,841,100	50,026	30,325,337	1,091,747	83,147,974		
Profit for the period	-	-	-	-	-	-	-	724,267	-	724,267		
Other comprehensive income for the period (notes 5 & 6)	-	-	-	-	-	-	61,357	28,910	-	90,267		
Total comprehensive income for the period	-	-	-	-	-	-	61,357	28,910	724,267	814,534		
Dividends paid (note 9)	-	-	-	-	-	-	-	-	(1,091,747)	(1,091,747)		
As at 30 September 2018 (reviewed)	11,025,000	(94,726)	5,512,500	2,190,079	31,206,911	1,902,457	78,936	31,049,604	-	82,870,761		
STATEMENT OF CHANGES IN EQUITY (continued)												
	Share capital	Treasury shares	Statutory reserve	General reserve	Revaluation reserve	Investment revaluation reserve	Share of Reserves of associate	Retained earnings	Proposed dividend	Equity		
	BD	BD	BD	BD	BD	BD	BD	BD	BD	BD		
As at 1 January 2017	11,025,000	(94,726)	5,512,500	2,190,079	31,206,911	2,224,552	49,392	29,282,547	1,310,097	82,706,352		
Profit for the period	-	-	-	-	-	-	-	1,775,951	-	1,775,951		
Other comprehensive loss for the period (notes 5 & 6)	-	-	-	-	-	(184,073)	(7,226)	-	-	(191,299)		
Total comprehensive (loss) income for the period	-	-	-	-	-	(184,073)	(7,226)	1,775,951	-	1,584,652		
Dividends paid (note 9)	-	-	-	-	-	-	-	-	(1,310,097)	(1,310,097)		
As at 30 September 2017 (reviewed)	11,025,000	(94,726)	5,512,500	2,190,079	31,206,911	2,040,479	42,166	31,058,498	-	82,980,907		

Mr.Faisal Ahmed Al Zayani (Chairman)

Mr.Adel N Hamadah (Vice Chairman & Managing Director)