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The Making of
The China–Maldives Friendship Bridge

A Dream Realized

中国·马尔代夫友谊大桥
当梦想照进现实

Ismail Abdulla
Hassan Hameed
Ahmed Shiyam

—

阿卜杜勒
哈桑
艾哈迈德

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Malé, Maldives
2019

Bridge by night.

A night time photo taken on 16th August 2018 after the bridge lights and railings were fixed.

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2018年4月29日，中马友谊大桥引桥至主桥方向整体全景

Foreword

The China–Maldives Friendship Bridge is the greatest feat of civil engineering the Maldives has witnessed till now. No wonder the people of Malé thronged the eastern esplanade all throughout the day while the construction of the bridge was on-going. The public interest in the methods and technology used in the project was overwhelming. When it was finished, people made special trips to Malé from all over the country to see the picturesque bridge and make a crossing. What was only a dream a few years ago, has now become a concrete reality.

"The faintest ink is better than the most retentive memory," so the saying goes. Having taken many photographs of the bridge while it was being constructed, we decided to document the construction process and events before and after the actual project for posterity. We believe that a printed book on the bridge is the cheapest and the most enduring way to pass on the information to future generations. It is our hope that copies of this book will be available somewhere for as long as the bridge stands and beyond for people to study and wonder.

When the bridge was finally completed, more than one person was awe-struck. Some people never thought it feasible and doubted till the last days. It seemed like a dream, not within the realm of possibilities, especially for a small country like the Maldives. But seeing is believing. Seeing the bridge standing proudly amid the *Gaadhoo Kolu* has awakened the minds of the people to what is possible with technology and cooperation. No longer is the tyranny of distance and the sea constraints to development. No doubt, the China—Maldives Friendship Bridge will not be the last bridge to be built in the Maldives in the coming decades.

We hope that you like reading through the book as much as we did producing it.

—Ismail Abdulla
—Hassan Hameed
—Ahmed Shiyam

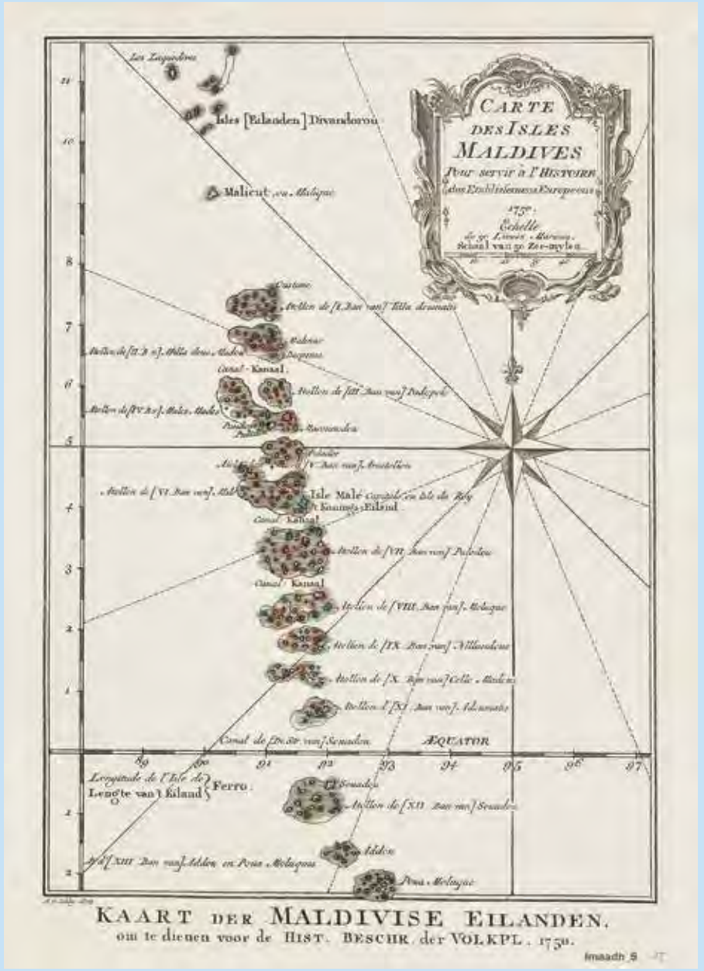
20th November 2019

The Need for a Bridge
需要一座桥

Radiocarbon dating of the coral which constitute the islands has concluded that the islands were formed approximately 6000 years ago—recent in terms of geological time. The islands have been settled for at least 2250 years. Other evidence (the provenance of cowries found in face masks excavated from ancient Jericho) suggests an older ancestry going back to over 4000 years. From linguistic and epigraphical evidence, it is known that the early settlers were peoples from neighbouring Sri Lanka and the southern coast of India. However, genetic ancestry testing shows that there is significant genetic diversity in the population since the Maldives is located on a major sea route.

All throughout its history, the Maldives was an independent country except for two foreign interpositions. In the first of these, the Portuguese were involved; in the second, raiders from a kingdom on the southern coast of India were the perpetrators. In both instances, after a short time, local heroes drove away the aggressors.

Throughout its known history, Malé was the capital island in which the reigning king or queen resided. Malé had an area of about a square kilometre. With little in-migration from other islands, the population of Malé remained steady with a small natural increase until about the 18th century. However, with time, Malé became a commercial centre leading to in-migration. Centuries of burying the dead began to gradually increase the percentage of land allocated to graveyards. By the 19th century, Malé had become overpopulated.

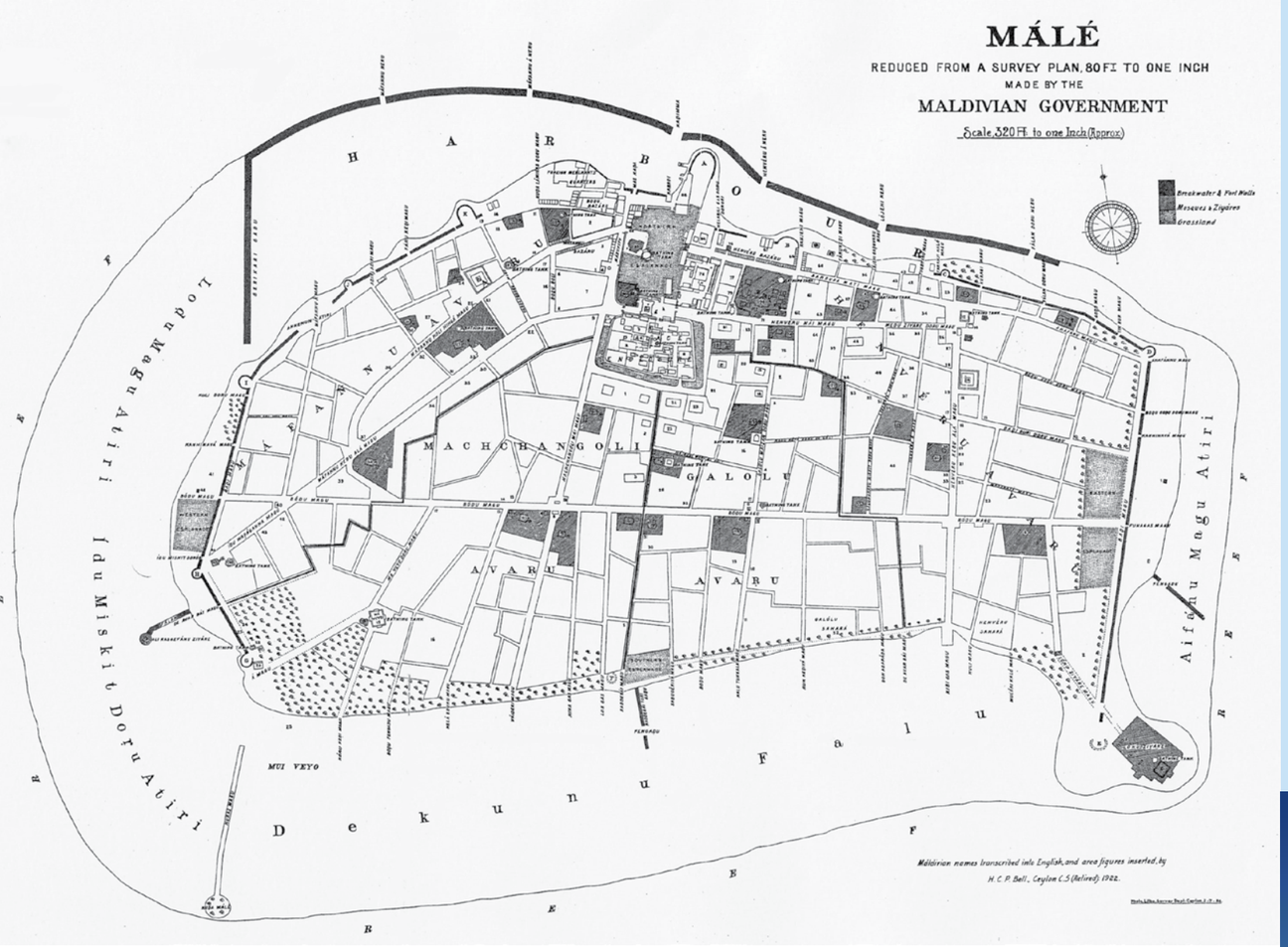


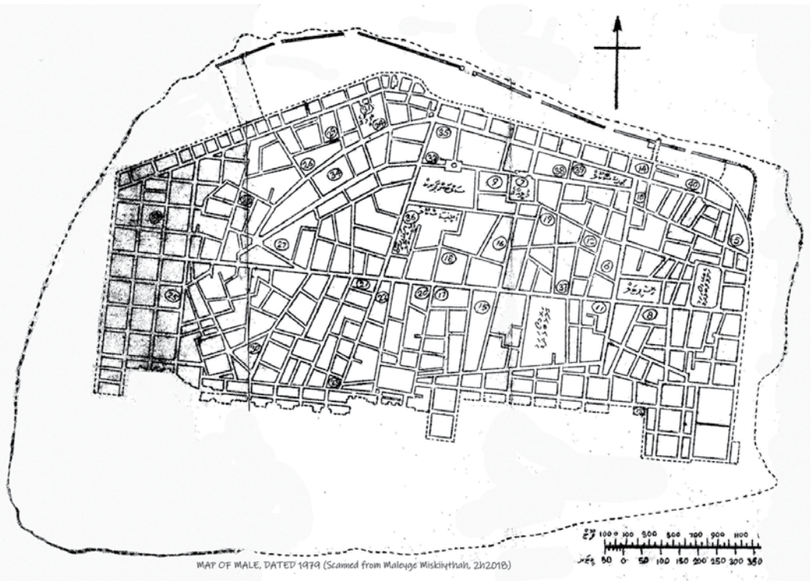
Above is a map of the Maldives from the year 1750. At that time, the Maldives stretched from Maliku to Addoo. All throughout its history, Malé was the capital.

The island of Malé is around the centre of the Maldives in Malé atoll. At the top right is a map showing the names of significant islands in the atoll. At the right is a satellite map of the atoll. Most of the islands were uninhabited in Malé Atoll but in recent decades, these have been turned into resorts.

上图是1750年绘制的马尔代夫地图。当时，马尔代夫从Maliku岛延伸至Addoo岛。在整个历史过程中，马累始终是其首都。

马累位于马尔代夫马累环礁的中心。右上角的地图中展示了该环礁中重要岛屿的名称。右边是该环礁的卫星地图。马累环礁中大部分岛屿都无人居住，不过近几十年，这些岛屿已变成度假胜地。





Above is a map of Malé drawn in 1922 and on the left is a map drawn in 1979. Poorly thought out government policies, particularly between 1969–1978 (Nasir's presidency) led to extreme overcrowding. During the period 1978–2008 (Maumoon's presidency), reclaimed land from the reef increased the area of Malé to two square kilometres. Unsound policies further aggravated the already appalling congestion.

这些都是马累地图，上图绘制于1922年，左图绘制于1979年。政府在制定政策时考虑不周，特别是1969年至1978年间（Nasir统治时期），导致马累极度拥挤。在1978年至2008年间（Maumoon统治时期），填埋暗礁，开拓陆地，这使得马累面积扩大至两平方公里。不健全的政策进一步加剧了马累拥堵局面，使其不堪重负。

In an account written by two overseas visitors (Young and Christopher) in 1836, the population of Malé was given as between 1500 to 2000. This number itself would have been considered too large by the standards of time. However, by 1922, when the notable historian, HCP Bell, visited Malé the population was about 5000— a three-fold increase in a century. Bell states, "In this Twentieth Century the first, and most persistent, impression left on the European visitor to Malé is not unlikely to be that this much over-populated central Island, which rules the Archipelago, is, in great degree, "a city of the dead." He wrote so, because of the great number of the graveyards in the island. He further writes, "... imperative demands on available space—dwindling seriously year by year,—whether for further interments or Municipal requirements, have inevitably forced the Government to assert its right to oust even the dead, after due efflux of years, on irresistible grounds of expediency." In later years, the population increased tenfold making the congestion worse.

The photo below, taken in 2004, shows the congestion of Malé. One hardly finds a single storey building. Most private homes are multi-storeyed; ten storeys are not uncommon. The streets, irregularly laid out, are usually narrower than seven metres. The island ranks among the five most congested cities of the world in 2019.

下图摄于2004年，显示了马累的拥挤状况。在这里，人们很难找到一栋单层建筑。大多数私人宅邸都是多层；十层楼都很常见。街道布局不规则，通常不足七米宽。马累于2019年被列入世界五大拥挤城市。

Decongestion and the idea of a bridge

While many people would have considered decongestion of Malé as a solution, the first written record of the need to inhabit nearby islands is attributed to the first president, Muhammad Amin. He was aware that the solution to the shortage of land in Malé for development lies in inhabiting the two islands close by: Viligin'li and Hulhulé. In an article published in Government Gazette in the early 1950s entitled *Dare— From Malé to Hulhulé or Viligin'li* he proposed that relief from the congestion of Malé lies in daring to establish settlements in Hulhulé or Viligin'li.

The first president, Amin, argued 70 years ago that decongestion of Malé lies in inhabiting the nearby islands of Hulhulé and Viligin'li.

Lack of attention to the development of the atolls led to migration of rural population to Malé in the years 1960s to 1990s. In the 1960s and 1970s, reclaiming land from the lagoon surrounding Malé began. The photo on the left below, taken on 26 February 1966, shows a futile attempt by the then Prime Minister Nasir to build a causeway to link Malé to the nearest island—Funadhoo. Reclaiming the lagoon around Hulhulé began in February 1968 as shown on the photo on the right below. For some families, land was allocated from the lagoon requiring them to reclaim it for themselves.

20世纪60年代到90年代，对环礁的发展缺乏关注导致农村人口向马累迁移。在20世纪60年代和70年代，开始对马累周围的泻湖进行填埋。左下方照片摄于1966年2月26日，描述了当时总理Nasir试图建造一条堤岸，将马累与最近的Funadhoo岛连接起来，不过这项尝试最终以失败告终。1968年2月开始对马累周围泻湖进行填埋，正如右下图所示。对于部分家庭而言，土地是从泻湖中划分出来的，这就需要他们自己动手填埋以获取土地。

When Maumoon came to power in 1978, he caused the reclamation of almost the whole extent of Malé reef claiming that the land would be used for public housing. However, most of the land was used for municipal and government use. Further demand for housing, required him to resettle people in Viligin'li island nearby in mid 1990s. From the start of the project to the end, it took ten years for people to start living on the island. Migration to Malé continued unabated due to the neglect of rural development. The idea of reclaiming Hulhulé reef, the airport island reef, was then floated. Reclaiming this reef was to be in two phases. The first phase appears to have started on 16th June 1997. At that time, ceremonial inauguration took place using a small remote control.

Viligin'li was resettled in the mid-1990s to ease the housing shortage. The island was initially conceptualized as a medium-density settlement. Poor policies continued the urgent demand for housing. Thus, the idea of reclaiming land from Hulhulé reef was born.

当Maumoon在1978年执政后，他几乎把整个马累环礁都填满，并声称土地将用来建造公共住房。然而，大部分土地被用于市政工程和政府方面。20世纪90年代中期，为解决对住房的进一步需求，他把人们重新安置在附近的Vilin'gili岛上。从这项工程开始到结束用了十年时间，工程结束后，人们才开始在Vilin'gili岛上生活。由于忽视农村发展，人们向马累迁移的迹象有增无减。进而，回填胡鲁累环礁，即机场岛环礁的想法跃入脑海。这项回填工程分为两个阶段，第一阶段已于1997年6月16日启动。当日仪式上使用小型遥控器启动典礼。

Advances in technology had enabled the reclamation of land from shallow lagoons to progress at an unprecedented rate. The above photo with the date stamp shows reclamation underway in mid 1998.

Once a small piece of land had been reclaimed, many people would have seen the possibilities to alleviate the pressure on Malé as real. Hulhumalé was no longer a dream.

技术进步使得浅水泻湖回填工程能够以前所未有的速度进行。上面带有日期的照片显示了1998年年中进行的填海工程。

只要回填出一小片土地，人们就能看到减轻马累人口压力的可能性。胡鲁马累填海工程也就不再是梦想了。

Malé is at the southern tip of the North Malé Atoll. These two Google maps taken in 2001 and 2018 show the reclamation of the northern lagoon of Hulhulé' — the airport island. The reclamation started on 16th October 1997; the top image is dated 21st January 2001. The reclaimed land was called Hulhumalé'.

Eighteen years later, the initially reclaimed area was almost fully settled. In the bottom image, this area is seen with trees. The northern section is the newly reclaimed Phase 2. Now almost the whole lagoon has been fully reclaimed leaving inner harbours for sea-going vessels and floatplanes.

马累位于北马累环礁的南端。这两张谷歌地图分别取自2001年和2018年，显示机场岛胡鲁累北侧泻湖填埋情况。填海工程开始于1997年10月16日；上面的图片取自2001年1月21日，填筑后的陆地被称为胡鲁马累。

十八年后，最初填筑的陆地上几乎住满了人。从下面的图像中可以看出这片区域植被繁茂。北部是最近的填海2期工程。如今，除了内港供出海船只和水上飞机使用外，几乎整个泻湖区域都已回填完成。

PHOTO: RAJJE:MV

Soon after Hulhumalé was settled, the passenger traffic between Malé and Hulhumalé kept increasing. By 2000, the ferry terminals and the environs were congested on a daily basis until about midnight.

President Maumoon Abdul Gayoom who had been in power since 1978 ran for the presidency again in the 2008 multi-party election. It was during his campaign that posters showing a bridge between the two islands were put up in a few places in Malé. The need for a means of convenient travel was great and the political promise was likely a mere stunt to entice the public to vote him. The posters showed a suspension bridge along the lines of the Golden Gate Bridge wholly unsuitable to span the channel due to the nearby airport. Maumoon lost the election which was won by Mohamed Nasheed. President Nasheed, according to his Vice President Waheed, carried forward the idea of the bridge. Later, Waheed who became the fourth President in the second Republic is on record for saying he was also all for it. In the Presidential Election of 2013, the idea of the bridge was again floated as a campaign promise by one of the presidential candidates, Burumaa Gasim Ibrahim. Yameen Abdul Gayoom who won the election spoke against the feasibility of a bridge before the election (1st September 2018, *Miadhu*).

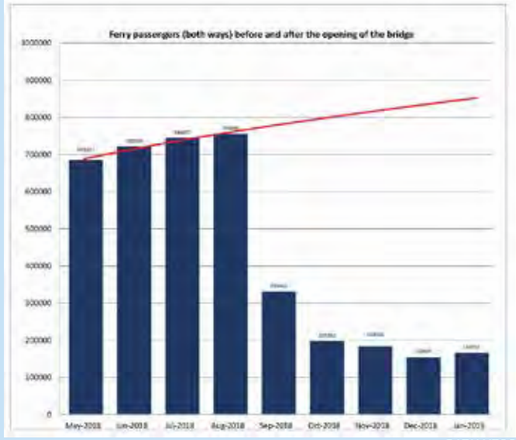
According to the newspapers of the times, President Yameen's one time Vice President Adheeb, while under house arrest, gave an interview taking credit for carrying forward the bridge project himself alleging that the President Yameen did not believe that building the bridge was possible.

Before the bridge was built, transport to and from Hulhumalé was by ferries operated by a company partly owned by the government. Before the bridge, the ferry terminals were overcrowded with passengers, as shown in the photographs above. Often, the ferries were full and passengers were required to wait. The whole area near the ferry terminals were congested with vehicles and people. Additionally, the sea can be quite rough during the southwest monsoon making the trips rather heart-rending.

The photograph below was taken after the bridge was opened.

在大桥建成前，人们往返胡鲁马累的交通工具只有渡轮，渡轮是由公司经营，且部分归政府所有。在大桥通车前，渡轮码头挤满了乘客，如上图所示。通常，渡轮坐满人后，其他乘客则必须等待。此外，在西南季风期间，海况极差，渡轮出行极其不易。

下面的照片摄于大桥通车后。



DATA: MTCC

The graph above shows the impact of the opening of the bridge on the number of passengers ferried. Before the bridge was opened, there were over 700,000 passengers ferried in a month. After the bridge opening, the passenger numbers reduced fourfold. The gross income from ferry operations would be about $3 million per annum.

The trend line shows the ever increasing passenger numbers will overshoot one million mark in about one and half years. This number of passengers would require new ferry terminals and other infrastructure.

上图显示了大桥开通后对渡轮乘客数量的影响。在大桥开通前，一个月内有超过70万名乘客乘坐轮渡。大桥开通后，乘客总数减少了近3/4。渡轮营运每年总收入约300万美元。

走势图表明了，在大约一年半的时间内，乘客数量将不断增加，并超过一百万大关。运送这么多乘客就需要新的渡轮码头及其他基础设施。

China-Maldives Relations and the Bridge

中马友谊之桥

The China-Maldives relations has a long history going back to the middle ages. The Chinese chronicles mention the visit of the great explorer Zheng He twice to the Maldives in the fifteenth century. The chronicles note that one visit occurred during the reign of Sultan Yusuf who reigned for 23 years from 1420 to 1443.

Zheng He (Wade-Giles: Cheng Ho) was born as Ma He to a Muslim family in Yunnan. He is also known as Ma Samboa ; Arabic/ Persian name: حاجی محمود شمس Haji Mahmud Shams) (1371–1435). He was captured when young, castrated and became a servant to a Prince of Ming Dynasty. Zheng He became famous as a Chinese mariner, explorer, diplomat and fleet admiral, who commanded voyages to Southeast Asia, South Asia, and East Africa, collectively referred to as the travels of "Eunuch Sanbao to the Western Ocean" or "Zheng He to the Western Ocean", from 1405 to 1433. His ships were said to be over 120 metres long at a time when European ships measured no more than 30 feet.

The Chinese Ministry of Foreign Affairs records the ancient and recent China-Maldives relations thus:

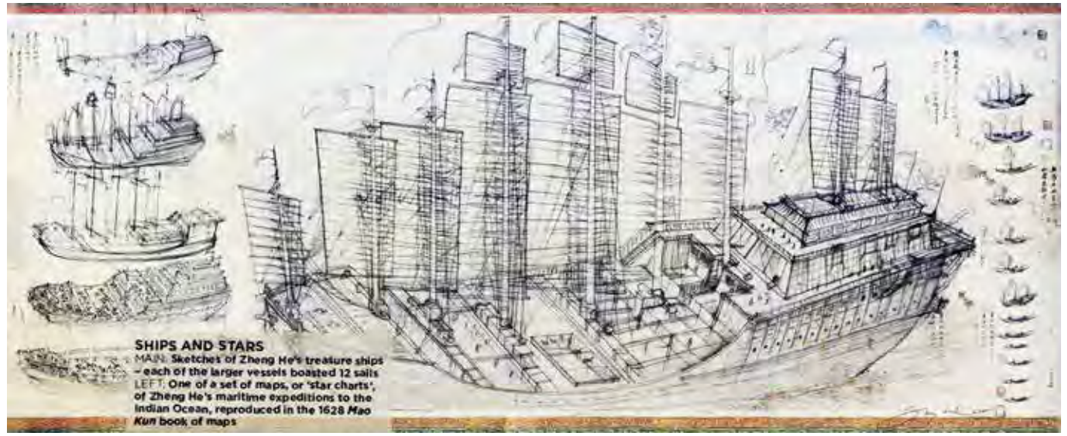
"Maldives is called "Liushan Guo" or "Liuyang Guo" in Chinese history. In Yongle 10th year (1412) and Xuande 5th year (1430) of the Ming Dynasty, leading a fleet of merchant ships, Zheng He reached Maldives twice. Since Yongle 14th year, King of Maldives Yusof sent his envoys three times to China. In Foreign Splendors written by Zheng He and his entourage Ma Huan and Maritime Marvels by Fei Xin were true and detailed records of Maldives' geographical position, climate, products and customs. In Male Museum are China's porcelain and coins unearthed there on

This map shows some of the routes taken by Zheng He. In total, Zheng He undertook seven voyages. He is said to have visited the Maldives twice an the reigning Sultan is said to have sent envoys three times to China. 郑和下西洋航迹图

display, a witness to China's friendly contacts and trade relations with Maldives in history. Due to the imperialist invasion afterward, China-Maldives relations were suspended for several centuries.

In the early 1960s, Chinese and Maldives ambassadors to Sri Lanka started visiting each other. China supported Maldives in its struggle for national independence by ridding itself of the British colonial rule. On October 14, 1972, China and Maldives established diplomatic relations, and Chinese ambassador to Sri Lanka was concurrently accredited to Maldives. In 1980, Maldives Foreign Minister Jamil officially paid a friendly visit to China. In 1984, Maldives President Gayoom paid a state visit to China. In 1993, Foreign Minister Jameel visited China again. In 2000, Maldives State Minister of Defence and National Security Sattar visited China and in 2001, Foreign Minister Jameel, Speaker Hameed and Brigadier Zahir, General Chief of Staff

Top: Zheng He as imagined by a modern artist. Bottom: A ship expert building a model of one of Zheng's ships. 郑和船舶模型



for National Security Force visited China one after another.

On the other hand, Chinese Vice-Premier cum Foreign Minister Huang Hua, Vice-Premier cum Foreign Minister Qian Qichen, Vice-Chairperson of the Standing Committee of the NPC Chen Muhua, and Chairman of the CCPCC Li Ruihuan, General Chief of Staff of the PLA Fu Quanyou and Premier Zhu Rongji visited Maldives respectively in 1981, 1994, 1997, 1999 and 2001. On the occasion of 30th anniversary of the establishment of the China-Maldives diplomatic relations in 2002, President Jiang Zemin and Foreign Minister Tang Jiaxuan exchanged congratulatory messages respectively with President Gayoom and Foreign Minister Jameel. On May 26, 2009, Maldives opened its Chinese embassy in Beijing. Mr. Ahmed Latheef became Maldives' first Ambassador to China." (http://www.chinadaily.com.cn/world/2009-08/19/content_8589136.htm)

For the first time, an embassy of the People's Republic of China was opened on 8th November 2011 in Malé. Previously, Chinese consular affairs were conducted from their embassy in Sri Lanka.

The ships of the fleet of Zheng He were very large some having as many as 12 masts. The science of building such large ships were lost with the end of the Ming Dynasty. The ships were specialized: one carried water, one soldiers and others were functionally different as well. Zheng He died, according to some historians, in China, but according to others on his seventh vogage near Kozhikode in Kerala coast.

This photo is from the opening event of the Chinese Embassay in the Maldives on 8th November 2011. The event took place at Trader's Hotel which was then a hotel on Ameer Ahmed Magu, now called Hotel Jen.

The first resident Chinese ambassador was HE Yu Hongyao (zh:余洪耀). However, he had been appointed in October of the same year. HE Yu Hongyao continued as ambassador until December 2013. Thereafter, from December 2013 the ambassador was HE Wang Fukang (王福康). Most of the groundwork of the bridge was laid out in the period when HE Wang Fukang was the ambassador.

China–Maldives Trade and Chinese Development Assistance

中马贸易与中国援助

Following the rapid industrialization of China, and the establishment of direct business relations between China and the Maldives in 1982, trade between the two countries had been increasing. In 2018, the China-Maldives trade volume was US$397 million, of which US$1.30 million were imports from the Maldives to China.

随着中国工业化快速形成，以及1982年中国与马尔代夫建立直接贸易关系，两国间贸易往来日益加深。2018年中马贸易总额达3.97亿美元，其中中国从马进口130万美元。

In 2017, Maldives and China signed a free trade agreement. In the same year, the Maldives signed an agreement with China to cooperate under the Belt and Road initiative of China.

2017年，中国与马尔代夫签订自由贸易协议。同年，两国在“一带一路”倡议下签订合作协议。

The prosperity of China has enabled her to become a major provider of development assistance to countries worldwide . By 2018, China leads all other countries in the provision of development assistance to the Maldives, especially in areas where other countries are most hesitant — infrastructure.

中国的繁荣富强为其向世界各国提供援助奠定了基础。截至2018年，中国是向马尔代夫提供发展援助最多的国家，特别是在其他国家不愿意涉足的基础设施领域。

The Chinese government has built a number of social housing estates in Malé region at a time of great need for them.

中国政府在非常需要的时候，在马累地区建造了一批当地急需社会住房。

The longest sealed road in the Maldives is the 17-kilometre road linking several islands of Hadhdhumathi or Laamu Atoll. The engineering and construction of the road were a Chinese grant-aid. The road is an enduring symbol of the close friendship of the peoples of these two nations.

马尔代夫最长的公路全长17公里，连接Hadhdhumathi环礁或Laamu环礁的数个岛屿。这条公路是由中国援建。它是中国和马尔代夫两国人民关系密切、友谊长存的象征。

The prosperity and the generosity of the people of China are most evident in Malé. The National Museum and the National Art Gallery buildings are gifts from the Chinese government— not to mention the iconic Ministry of Foreign Affairs building shown above.

中国人民的富强和慷慨在马累体现得淋漓尽致。马尔代夫国家博物馆和国家美术馆都来自中国政府的馈赠，更不要说上面所示的外交部标志性建筑了。

A Bridge of Friendship

友谊之桥

H.E Mr. Wang Fukang was the resident Ambassador when the Bridge Project started. He presented his credentials on 30th December 2013.

At the time of the opening of the Bridge, the ambassador was H.E. Mr. Zhang Lizhong who presented his credentials on 29th August 2017, We asked H.E. Mr. Zhang Lizhong what, in his opinion, is the significance of the bridge for the peoples of China and the Maldives.

Top: H.E. Mr. Zhang Lizhong.
Bottom: H.E. Mr. Wang Fukang;

Q: Your Excellency, what is the significance of the bridge for the government of China and the people of the Maldives?
阁下，这座桥对中国政府和马尔代夫人民有何意义

Q: In what ways do you regard the China-Maldives Friendship bridge as special?
您认为中马友谊大桥特别在哪里？

Q: What were some of the most difficult operations in the construction of the bridge according to you?
就您看来，大桥施工过程中最大的困难是什么？

大桥是中马传统友好的新象征，作为世界上最大的发展中国家，中国愿与世界各国特别是发展中国家共享发展的成果，这也是一带一路合作倡议的基本理念，中国政府和人民愿意帮助马代人民发展基础设施，解决围绕马经济社会发展的瓶颈。大桥的通车是马代经济社会发展的重大事件，中国工人面临马代严酷的施工环境，克服了远洋深海珊瑚礁地质、深水长周期波和高温盐腐的三大技术难题 以及现场施工的诸多实际困难，用33个月的时间完成了这一历史壮举。

大桥是中马共建“一带一路”、互利合作的最新成果。大桥联通了两岸三地，方便了两岸交流，正在改变并且将继续改变马代人民的生活，同时也为马代社会经济的进一步发展，为人民未来美好的生活愿景带来无限想象的空间。

The bridge is a new symbol of China-Maldives traditional friendship. As the largest developing country in the world, China is willing to share the fruits of development with all countries, especially the developing countries, in the world. This is also the basic conception of the Belt and Road Initiative. The Chinese government and people are willing to help the Maldivian people in its construction of infrastructure to solve the bottleneck of the economic and social development in Maldives. The opening of the bridge is a major event of the economic and social development in Maldives. In facing the harsh construction environment in Maldives, Chinese workers have overcome the three technical problems of deep ocean coral reef geology,deep water long period phase, high temperature and high erosion and many other difficulties of on-site construction to complete this historical feat within 33 months.

The bridge is the newest outcome of mutually beneficial cooperation under the Belt and Road Initiative by connecting the three islands across the strait and facilitating cross-strait exchanges. It is changing and will continue to shape the lives of the people of Maldives. Last but not least, it brings more room for imagination to the social and economic development of the Maldivian people in the future.

来自中国的贵宾

中国政府特使、商务部副部长高燕出席大桥启动仪式。

Distinguished visitors from China

Following the establisment of the Chinese Embassy in Malé, the Chinese support for the development of the Maldives increased.

The most distinguished visitors from China is the President of the People's Republic of China, HE Xi Jinping.

习近平主席是第一位对马尔代夫进行国事访问的中国国家元首。习主席于2014年9月14日抵达马尔代夫。正是在这次访问期间，习近平主席承诺支持马大桥建设。亚明总统把中国看作“最亲密的朋友、最信任的盟友、最可靠的发展伙伴之一”。2017年，亚明总统应国家主席习近平的邀请访问了中国。

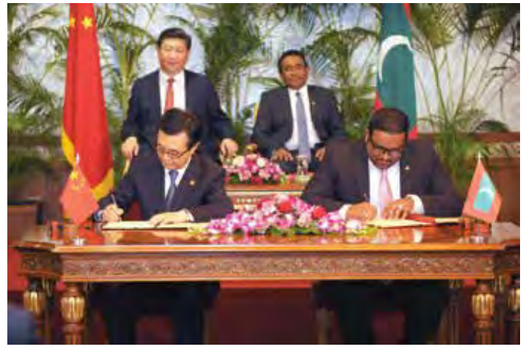
President Xi was the first Chinese Head of State to make a state visit to the Maldives. He arrived on 14th September 2014. It is during this visit that President Xi pledged to support the construction of the bridge.

President Yameen designated China as one of the Maldives' "closest friends, most trusted allies, and the most dependable development partners." President Yameen visited China in 2017 on an invitation extended by President Xi.

The Preliminaries
准备工作

A number of steps were required before the vision of the bridge could be realized. Although there had been previous discussions with the Chinese Government earlier by the previous president, what set the ball rolling was the visit of HE Xi Jinping on the invitation of Preident Yameen, and the signing of a memorandum to promote the bridge. The agreement was signed by the Minister of Tourism of Maldives, Hon. Ahmed Adeeb Abdul Gafoor, and the Chinese Minister of Commerce, Hon. Gao Hucheng. The date was 15th September 2014.

Other steps towards realizing the first bridge in the Maldives include the feasibility study to establish whether a bridge is possible, geotechnical survey of the seabed and the floating of tenders for the design and construction. These steps are usually involved in any large construction project.



Following the signing of the agreement on 15th September 2014, a flurry of activity started. Initially, there was a number of feasibility studies. A team of eight Chinese members were conducting a feasibility study in October 2014. An agreement was signed on 1st December 2014 for another preliminary feasibility study.

Some 19 prequalified Chinese companies expressed interest in building the bridge However, only three companies submitted the bids. The newspaper date for the opening was 11th November 2015. Bid opening was held in China. The three companies which submitted the bids were China Railway Major Bridge Engineering Group Co., Ltd., CCCC Second Harbour Engineering Company Ltd. and Sichuan Road and Bridge Construction (Group) Corp. Ltd, according to local papers.

大约19家经过资格预审的中国公司表示对本项目感兴趣。然而，只有三家公司投标。 开标仪式定在2015年11月11日，在中国举行。据当地媒体报道，投标的三家公司分别是中铁大桥局集团有限公司、中交第二航务工程局有限公司和四川路桥建设集团股份有限公司。

For the bridge design, 29 bore holes some 30–75 metres deep were drilled. The initial borehole was drilled in the presence of government officials on 20th May 2015.

根据大桥设计，需钻29个约30-75米深的钻孔。2015年5月20日在政府官员见证下钻探首个钻孔。

The final design of the bridge was unveiled at an outdoor event held near bridge site in the evening of 8th September 2015. Many officials were present. Finally, the bridge vision has a relatable image.

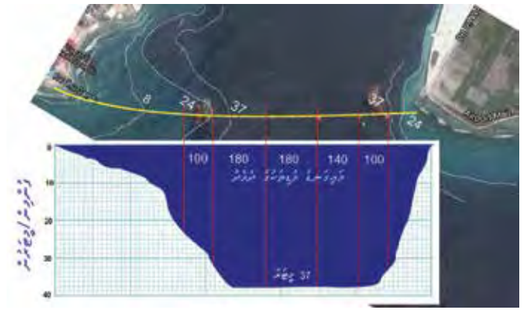
2015年9月8日晚，在桥址附近举办的户外活动上揭示了大桥最终方案设计，大桥形象跃然眼前。当时许多官员出席该活动。

On 30th December 2015, the contract was signed at Dharubaaruge with the selected project contractor. The contractor was CCCC Second Harbour Engineering Company Ltd.

2015年12月30日，在Dharubaaruge与选定的项目承包商，即中交第二航务工程局有限公司 签订合同。

Decades ago, a small island, called Gaadhoo, on the eastern side of Hulhulé was reclaimed to make the airport runway longer. The channel or strait between Hulhulé and Malé has a depth of about 46 metres at the deepest point along the proposed bridge line. Merchant ships sail to Malé harbour through this channel which opens to the Indian Ocean; the gateway to the channel from the Ocean is called Gaadhoo Kolhu. After building the bridge, merchant ships have to be diverted to another opening in the outer atoll reef to gain access to the harbour.

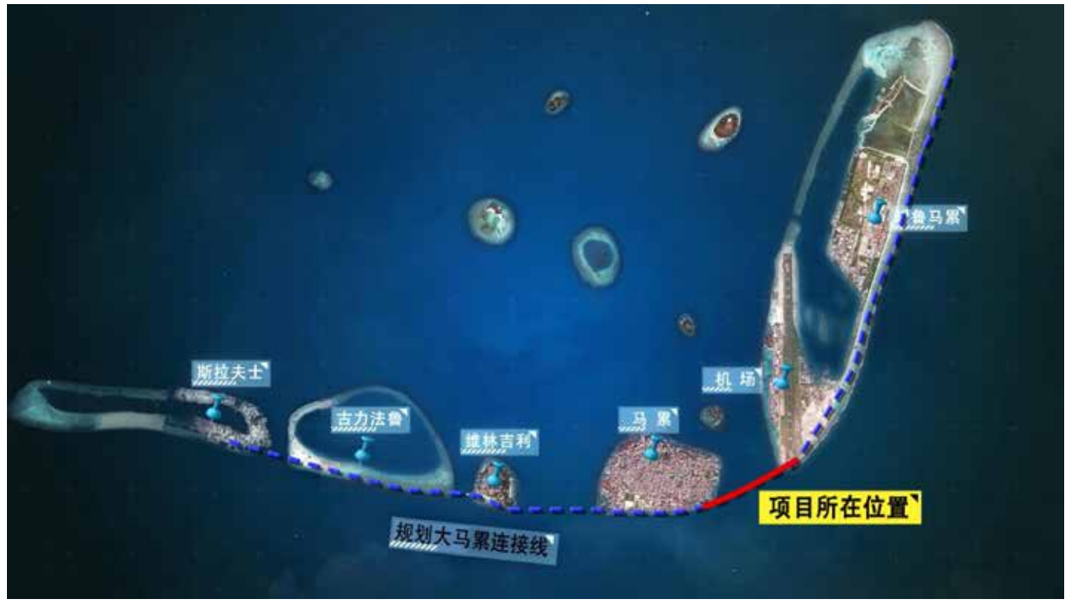
The opposite page shows a contour map of the depth of the channel. The bridge was built along the shallower areas. However, as the image on the right shows, both sides fall rather steeply to the flat middle section of the strait.



左页显示了航道深度的等高线图。大桥沿较浅区域建立。然而，正如右图所示，海峡两侧较其中间部分更为陡峭。

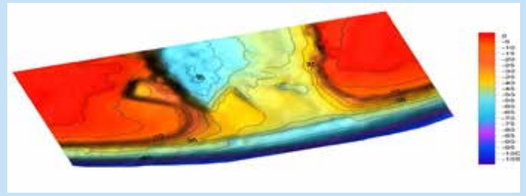
The China-Maldives Friendship Bridge is the first bridge to be built in the Maldives. Witnessing a bridge being built and used for development imprint in the minds of the people what could be achieved. Therefore, the bridge has opened the minds of the people to endless possibilities. The same transformation of thinking took place when shallow lagoons were reclaimed by modern suction hopper dredges in a matter of days. People realized that other nearby islands could also be connected by bridges.

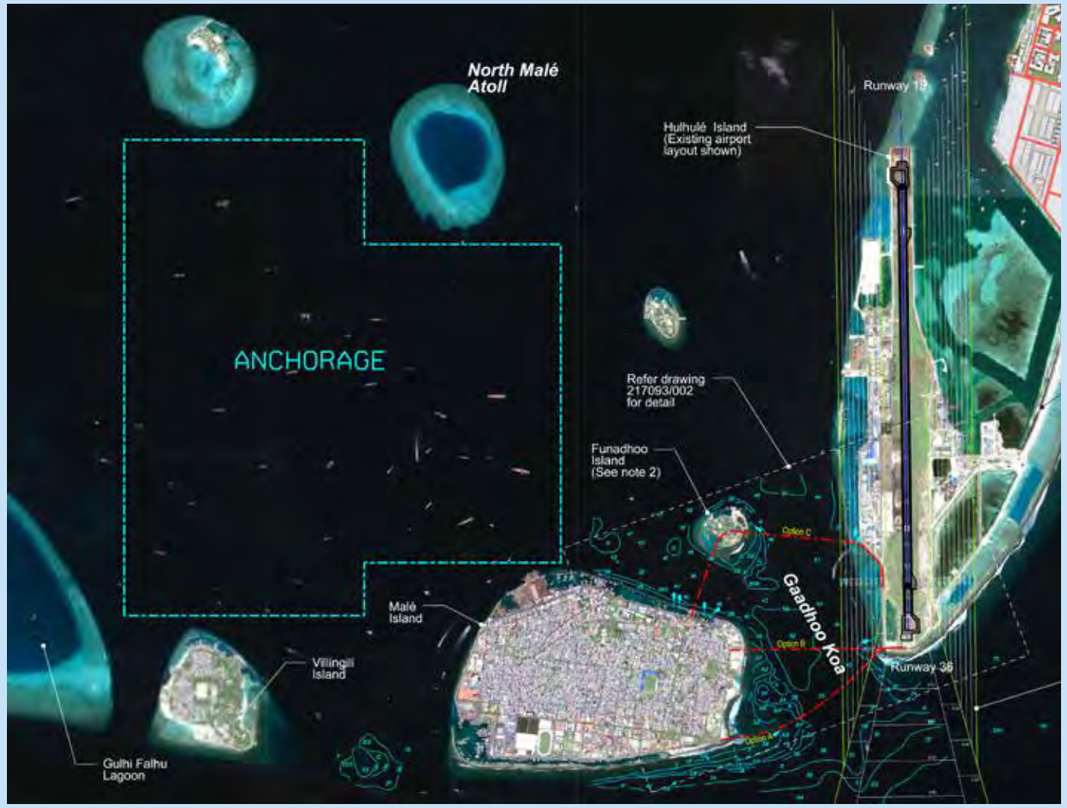
中马友谊大桥是马尔代夫的第一座大桥。大桥将促进国家发展，人们见证了它的建造过程，这在他们心中留下了目标可以实现的印象。因此，这座桥梁开启了人们对无限可能的想象。当用吸料斗挖泥机在几天内就把浅水泻湖填埋时，人们的思维也发生了同样的转变。大家意识到也可以通过桥梁把附近其他岛屿连接起来。



The image shown at the bottom is from a feasibility report conducted in 2011. Three options for the path of the bridge are shown. The report notes that Option A is most feasible. The vertical lines on both sides of the airport runway are the obstruction surface limits. The bridge has to have a height of less than 45 metres near the airport constraining choices of bridge types.

Note the depth contour lines. The China-Maldives Friendship Bridge follows Option A. The maximum depth is about 35 metres. The diagram below is a 3D drawing of the seabed.





Boreholes were drilled to various depths on land and sea in May – June of 2015. The samples show that even at depths of 60 metres below sea level, the ground is invariably coral. The bearing capacity of coral is low hence requiring large piles to support the bridge.

本项目工程地质为珊瑚礁灰岩，不同于普通岩土，珊瑚礁具有密度低、孔隙大、结构性强、脆性大、强度各向异性显著的特点。这些特征与礁灰岩原生生物成岩的复杂性、胶结程度、后期成岩作用环境的变化直接关联，显示出极为复杂的岩土工程特性，工程界对珊瑚礁的工程地质特性缺少系统的认识，也缺乏类似地质条件的勘察设计规范及大型桥梁建设经验。

Differing from ordinary rock and soil, the coral reef has the characteristics of low density, large porosity, strong structure, high brittleness and obvious variation of intensity in different directions. These characteristics are directly related to the complexity of probiotic diagenesis of reef limestone, the degree of cementation and the environmental change under the action of post-diagenesis, which reflects the extreme complex geotechnical engineering properties. In the engineering industry, there is the lack of systematic understanding of the engineering geological characteristics of coral reefs and the lack of survey and design specifications and large bridge construction experience under the similar geological conditions.

THE BUILDING TEAM

1、设计单位全称（也是总建筑总设计者和总工程设计者）：中交公路规划设计院有限公司

1. Design Company (also referred to as: Chief Designer of General Construction and Chief Engineer Designer): CCCC Highway Consultants Co., Ltd.

2、承包商公司全称：中交第二航务工程局有限公司

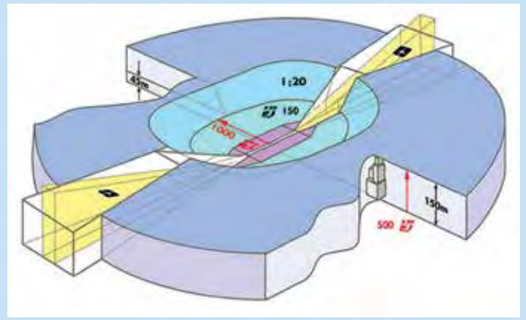
2. EPC Contractor: CCCC Second Harbour Engineering Co., Ltd.

3、咨询及项目管理公司：中交公路规划设计院有限公司

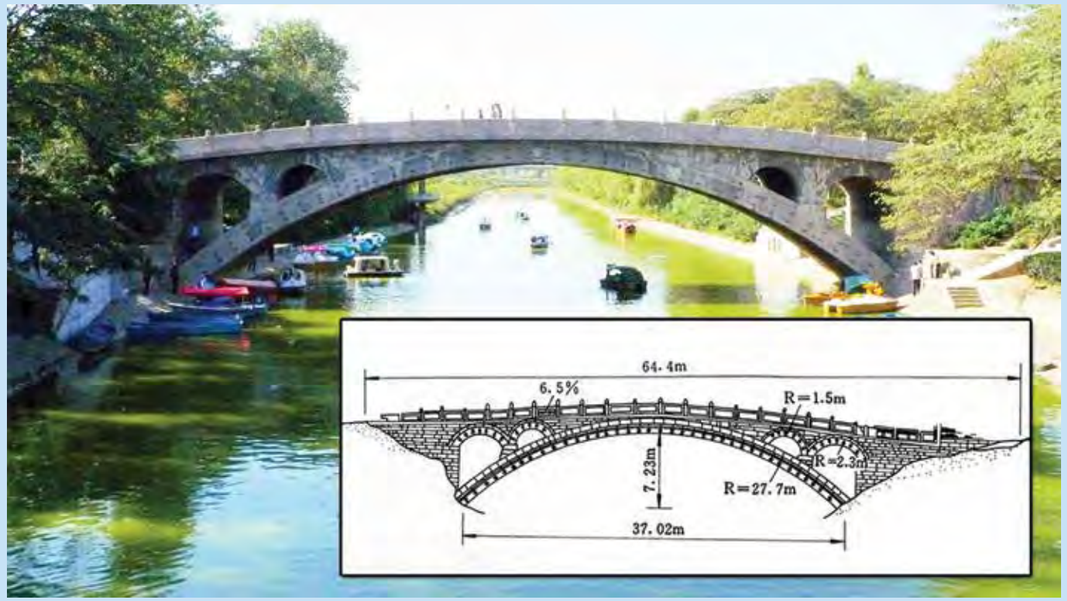
3. Consultant and Project Management Company: CCCC Highway Consultants Co., Ltd.

The Design of the Bridge

Two considerations restrict the type of the bridge that can be built across the channel. One is the geology of the area — coral limestone. The other is the location of the international airport close by. In fact, ICAO rules specify that the bridge height must be under 45 metres near the strait because the area falls within the Obstruction Limitation Surfaces of the runway. Therefore, only two types of bridges are possible. One is a segmental bridge and the other is an arch bridge. The designers chose multiple arches to reduce costs.



由于大桥桥位离马累国际机场跑道很近，在不影响航空运行的条件下，对大桥施工作业高度的要求，最严苛的区域限高小于5米，最宽松区域45米。因此，航空限高制约着桥梁设计方案的选取，也影响着施工方案选择、工效发挥和施工组织。



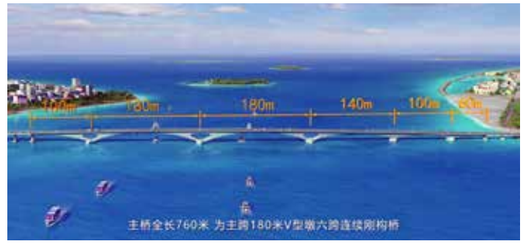
The Chinese are master bridge builders holding several world records. The above modern-looking bridge is actually the world's oldest open-spandrel segmental arch bridge of stone construction built by Li Chun between 595–605. The China-Maldives Friendship bridge has a remarkable similarity with this elegant Anji or Zhaozhou Bridge.

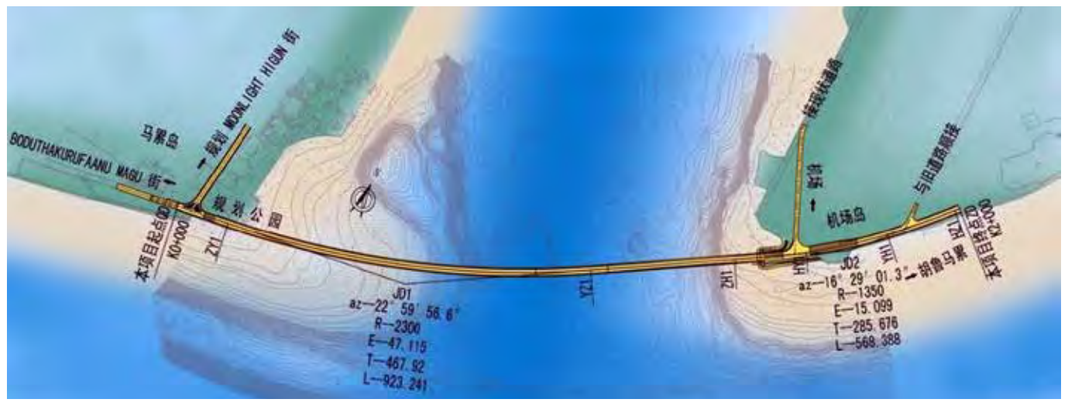
上面这座看似现代的桥梁是由李春在公元595年至605年间建造的，是世界上最古老的开放式拱桥。中马友谊大桥与这座优雅的安吉桥（又名赵州桥）有着惊人的相似之处。

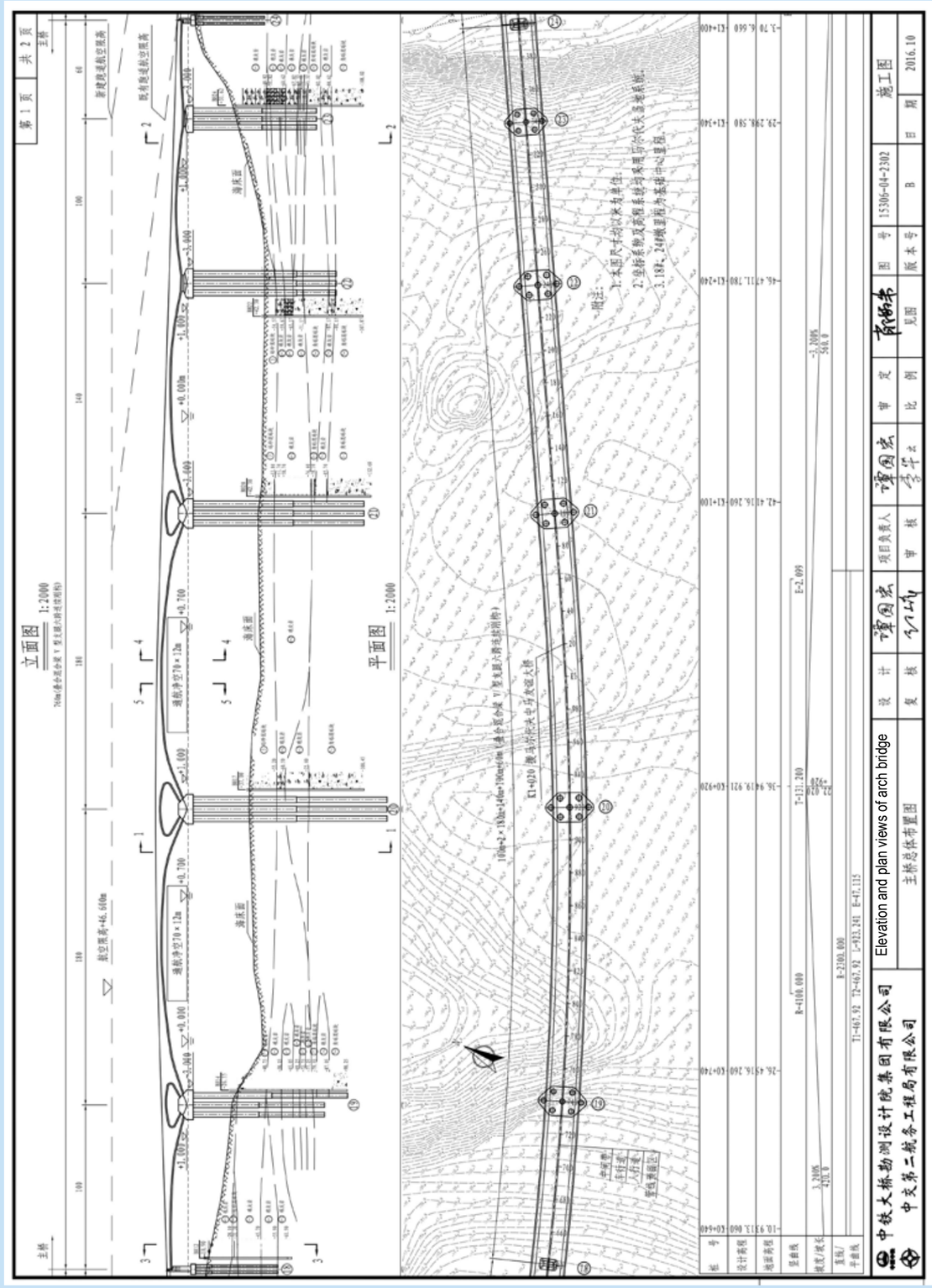
These images show the bridge as conceptualized. The designers chose to span the strait using six arch segments of various sizes. The longest spans are 180 metres long. The approaches are girder bridges. Given the constraints, these are sound decisions.

The bridge project starts from the south-eastern corner of Malé, crosses the Gaadhoo Koa with a bridge, lands at the southern end of Hulhulé and then connects to the planned road from Hulhulé island to Hulhumalé island. The entire route is about 2 km long including a 1.39 km-long bridge. The bridge span layout is 18 × 30m (approach bridge) + (100 + 2 × 180m + 140m + 100m + 60m) (main bridge) + 3 × 30m (approach bridge). The 630m-long approach bridges are made of 30m pre-stressed concrete I beams; the linking roads on both ends are around 610m long. The bridge is built on 26 piers each of which has four or more piles.

这些图片均是概念图。设计师选择用六个不同尺寸的拱形段来横跨海峡。其中最长跨的长度为180米。引桥为梁式桥。鉴于各种限制，以上均为合理决定。







The Trestle Bridge
栈桥

The trestle bridge is a temporary platform bridge built to facilitate the construction of the actual bridge. This bridge was built on the western (Malé) side of the actual one, so the construction of the bridge proper was somewhat hidden from Malé beach area. It was disassembled after opening the completed bridge. The trestle bridge is all steel and was used to carry men and materials for the actual construction.

栈桥是一座临时平台，以便建造实际待建大桥。因为栈桥建立在大桥西侧（马累侧），恰好挡住大桥，所以，在马累沙滩区域看不到大桥的施工过程。在大桥建成并通车后，将拆除该栈桥。栈桥整体是用钢铁建造，用于输送大桥施工所需的人员及材料。

Following the survey of the bridge site and the construction of the workers' quarters, the making of the bridge began. The first visible sign of the bridge being built in the sea was the arrival of barges and barge-mounted cranes from China. The crane barges were the largest ever to be seen in the Maldives. One had a lifting capacity of 1000 tonnes. They were brought on a special ship on 25th February 2016. The barges were unloaded by partially sinking the ship.

Using GPS positioning and survey data, large diameter pipes (casings) for the main platforms were driven into the sea bed. These were held in a structure mounted on the barge while being driven into the seabed by a hammer. On these were built temporary platforms.

The ship-mounted cranes were brought to the Maldives by a special ship in February 2016.

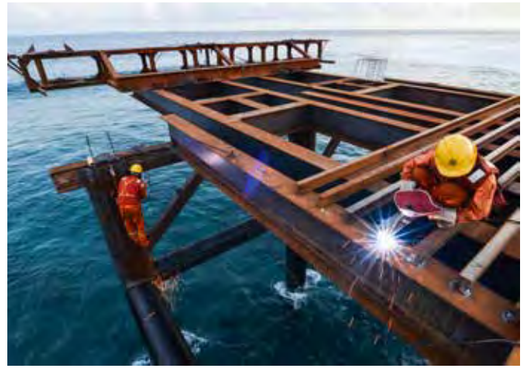
2016年2月，一艘特殊的船将这些浮吊运至马尔代夫。

The photo shown below, taken on 31st March 2017 from the Eastern esplanade, shows two barge cranes active on sinking the pile casings. Apart from landing side preparations, the mooring of barge cranes was the first indication that the dream of a bridge across Gaadhoo Kolu would be realized. At all times of the day, people gathered on the esplanade to watch the magic of bridge-building taking place.

以下照片拍摄于2017年3月31日马累东部空地，显示两艘浮吊正在放置钢管桩。除陆地上的准备工作之外，浮吊的停泊是实现横跨Gaadhoo Kolhu海峡的大桥这一梦想的第一个标志。人们每天都聚集在海边观看大桥建设的过程。

Taken on 10th April 2016, the above photo shows the start of the construction of the trestle bridge. Construction started from both ends. The middle section was joined only by a suspended walkway. The image on the top left was taken on 27th April 2016. The trestle bridge piers were first built. They served as a platform from which the main pier piles could be driven into the seabed. The bottom photo shows the trestle bridge a month after start.

以上照片拍摄于2016年4月10日，显示开始施工栈桥。这项工作从两端开始，中间部分仅由一条人行悬索桥连接。左上角图片拍摄于2016年4月27日。首先建造栈桥桥墩。栈桥是一座平台，主桥桥桩能够从此打入海底。底部照片显示了栈桥开工一个月后的情况。



In shallower regions, the trestle bridge was built by driving in about 600 mm diameter tubes of about 18 mm thickness by a crane. These formed the legs of the trestle. They were braced to make them sturdy. The crane driving the piles were moved along the trestle bridge as parts were completed. In deeper regions, tubes of about 1200 mm diameter were used as in the photo on the right taken on 23rd December 2018. Note that the deck of the bridge was supported only on two "legs". Where the main bridge piers were located, the platform was on legs of about 2000 mm diameter. There were four such legs for each platform.

在较浅的区域中，通过用起重机驱动约600mm直径的约18mm厚的管来建造栈桥。这些形成了栈桥的腿。他们被支撑起来使它们坚固。部件完成后，驱动桩的起重机沿着栈桥移动。在更深的地区，使用直径约1200毫米的管子，如2018年12月23日右侧照片所示。注意，桥梁的甲板仅支撑在两个“腿”上。在主桥墩所在的位置，平台位于直径约2000毫米的腿上。每个平台有四条这样的腿。

After the trestle legs were driven in, the platform from which the main piers would be constructed was dropped into the legs, each of which was about 2000 mm in diameter. The first platform was dropped on 16th April 2016. The platforms were made in China. These were removed once the bridge was completed.

在推进支架腿之后，将构成主墩的平台放入支腿中，每个支腿的直径约为2米。第一个平台于2016年4月16日撤销。这些平台是在中国制造的。桥梁完工后，这些被移除。

13 ދެއަހަރުގެ 2016 ގައި ބޮޑެތި ބަދަނގަޑުތަކުގައި ފަރުތަކުގެ ދަރަނި.

Prefabricated girders spanned the trestles at deeper regions. These are called Bailey beams. The photo was taken on 13th August 2016. At deeper regions, the trestles were further apart, thus requiring stronger girders.

在深水区，栈桥桥墩间用预制好的纵梁相连。这些梁被称之为贝雷梁。该照片拍摄于2016年8月13日。在深水区，因为栈桥桥墩之间间距更大，因此需要使用更坚固的纵梁。

The photos show the distribution platform and the completed deck of the trestle bridge. Until the arches were completed, most of the construction materials were carried in heavy vehicles on this temporary bridge.

照片中是施工平台和已建成的栈桥桥面板。在桥梁主体结构建成之前，大部分建筑材料都装载在重型车辆中，经此栈桥往来运输。

The trestle bridge which began from both ends was not joined at the middle to enable crane barges to cross from one side to the other. At the middle, there was a suspended walkway. Note the clamp fixed to the side of the barge to position the steel piles.

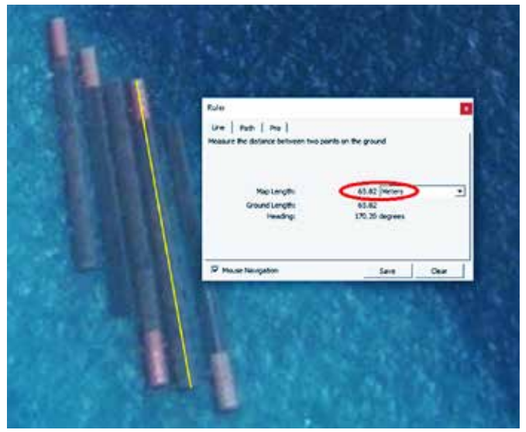
栈桥从两端开始施工，没有在中间相连，这便于浮吊从桥一侧穿行到另一侧。栈桥中间搭建了人形悬索桥。注意，导向架固定在驳船侧，以定位钢管桩。

Using the suspended walkway, workers could, for the first time, cross from Malé to Hulhulé. What was once a dream has now become a reality.

通过使用悬索桥，工人们首次从马累走到胡鲁累。曾经的梦想如今已成现实。

Building the Piers
修建桥墩

The sinking of a main pile on 11th October 2016.
2016年10月11日，主桥钢护筒施沉，多作业面形成的壮阔景象。



要做到高效施工，就需要与大桥建设相关的多项任务同时执行。当栈桥即将完成时，主墩施工作业仍继续进行。

下一项任务是打桩，用以支撑桥墩。桥墩尺寸不尽相同。构成主墩的桩径必须要大。

Efficiency of construction necessitated the concurrent execution of many tasks related to bridge building. While the trestle bridge was being completed, work continued on building the main piers.

The next major undertaking was the driving of piles to form the piers. There were piers of different sizes. The piles forming the main piers were necessarily of large diameter.

Managing the logistics, timely arrival of goods, must be one of the most critical aspects of administering a large project of this nature. About 90% of the goods were sourced from China and there was not enough land to keep them in Malé. Once, a few pile casings were discharged onto the Viligin'li lagoon. We have used a satellite photo to measure the length. For large diameter pipes a length of 65 meters is representative. The photo on the left shows the relative size of the large-diameter pile casings. Some had a diameter of 3.6 metres. The casings were taken to the pier site on large barges. The photo below was taken in June 2016.

These photos show the sequence of steps involved in driving\piles into the seabed. The four piles of each temporary platform was placed using a positioning structure on the side of the barge crane. The pile casings were hoisted by the crane and placed inside the positioning structure which aligns the pile. The pile is dropped into the seabed and hammered in using the hammer painted yellow.

After the initial piles were driven in, the remaining piles are positioned using the positioning structure fixed to the temporary platform. Some piles appear to be driven into the seabed for about 20 metres.

The driving in of large diameter pier piles of the bridge proper was more elaborate. The guides around the pile have hydraulic jacks which can be used to centre the pile in the desired position. These jacks can be seen in the photograph on the next page. Piling was probably the most critical and difficult operation of the whole construction process of the bridge. In the south-west monsoon the seas can be quite rough.

这些照片展示了打桩的一系列步骤，即利用浮吊侧的定位结构来放置临时平台的四根桩，用起重机将钢护筒吊起并放置到与桩平齐的定位结构里，再使用黄色漆面的打桩锤将其锤入海床。部分桩被打入海底约20米。

Concrete Used for the Bridge

结构部位 Structural Part	混凝土强度等级 Concrete Strength Grade	边长150㎜立方体试件的抗压强度 Compressive Strength Standard Value of the cubic specimen with its side length of 150mm
桩基 Pile Foundation	C35	35MPa
承台 Pile Cap	C45	45MPa
V墩 V-shape Pier	C55	55MPa
箱梁 Box Girder	C55	55MPa

Fly-ash was used in the concrete. Water-reducing and corrosion resistant admixtures were also used in the concrete.

The large diameter steel piles for the trestle bridge was driven into the strait held by a clamp mounted on the crane barge. On March 16, 2016, the first of these were successfully sunk into the sea bed. People observing with awe from the shore could now see what can be done with modern engineering technology.

The photo on the right shows the huge size of the piling hammer. Compare the size with workers on the platform. Note the four jacks used for centring the pile.

把主桥的大直径钢护筒打入海里，并用装置在浮吊上的导向架固定。2016年3月16日，成功将第一根钢护筒打入海底。人们心怀敬畏，在海岸边观察施工过程，见证了现代施工技术的伟大。

右侧的照片显示了打桩锤的尺寸之大。要与平台上的工人进行对比。注意，四个千斤顶是用来保证桩居中。

The heart of the drilling operation for piles of the approach bridge is the rotary drilling rig– TR360DH. This is a machine equipped with wireless GPS remote service. The rig weighs nearly 110 tonnes with kelly bar and core buckets. The nominal torque is 360 kNm and the kelly rotates between 4 to 21 revolutions per minute. The maximum diameter of drilling is 2500 mm. Therefore, drilling would require placement of the barrel at several places within the casing.

The photo below shows drilling taking place on 28th December 2017. Despite the large number of workers involved in the construction, there was no fatality which is a credit to the management of site safety.

用于引桥桩基钻孔作业的核心设备就是旋挖钻机TR360DH，它配置有无线GPS远程服务，重约110吨，带有方形钻杆和铲斗。其额定扭矩为360Knm，钻杆每分钟旋转4至21转。钻孔的最大直径为2.5米。

下图展示的是2017年12月28日的钻探工作。尽管参与施工的工人人数众多，但是并没有人员伤亡，这都要归功于现场安全管控到位。

This photo shows the rotary drilling rig (green) being used for drilling a hole to place one of the piles used in a main pier. The steel piles (casing) have the length and the diameter of the pile written on them. The diameter of the steel pile appears to be 3.46 metres and the length of the pipe is 63 meters near sea level.

A bucket auger driven by hydraulic power is used for removing the earth. The outfall was disposed of in a nearby island, Thilafushi.

图中显示了用液压动力驱动的旋转钻机（绿色），该钻机用于桩基钻孔。钢护筒上写有长度，其直径约为3.46米，近海面处显示钢护筒长为63米。

用液压动力驱动的铲斗钻进行除土。

The use of the machine to drill the first large-diameter pile foundation of the main bridge on 11th October 2016 is shown below.

2016年10月11日，用旋转钻机钻挖主桥第一个大直径桩基，如下图所示。

Above, a rotary drilling rig is being used to remove coral from a pile. The pile tops are covered in nets and cordoned. There was no fatality during the construction of the bridge.

上图中正在使用旋转钻机移除桩钻孔中的珊瑚砂石。桩顶用网覆盖并用警戒线包围隔离。大桥施工过程中无人员伤亡，这体现了良好的现场安全管控能力。

The reinforcement cages for the large piles are necessarily large. The photos show cages being made ashore.

桥桩大，则其所用的钢筋笼也必须大。图中显示正在岸上制作钢筋笼。

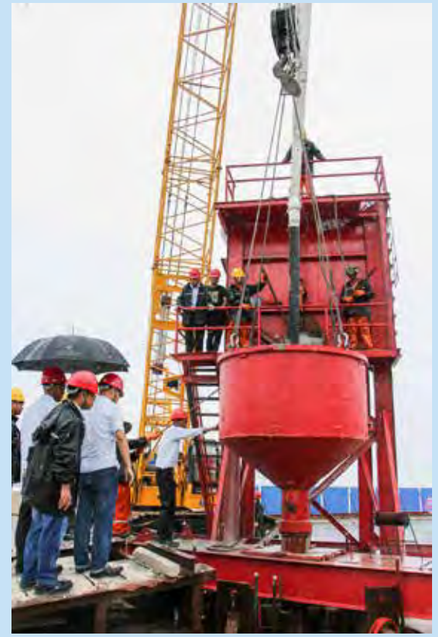
一旦用铲斗将桩基中的珊瑚砂石挖出，就把钢筋笼缓慢地下放到其中，再向内浇筑混凝土。这些操作均需要在临时栈桥和作业平台上执行。从左图可以看出钢筋笼是如何做成的。

Once the coral from inside the piles were dug out using core and bucket augers, the reinforcement cage was slowly lowered into the pile. Then, concrete was poured into it. These operations required a temporary platform and trestle bridge From the photo on the left, one can see how rebars were joined.

Note the distance between two rebars. They are spaced far apart probably because the steel casing was very thick. For the same reason, the rebars are not epoxy-coated. The rebars used for the superstructure are epoxy-coated because the concrete is exposed to the environment.

After driving in the piles for the main piers, and excavating the coral from inside, the next major step was placing the steel reinforcement cage. After the cage is placed, the pile is filled with concrete.

For underwater concrete work, two methods are used to pour concrete. One is direct pour and the other is the use of tremie. A tremie is a watertight pipe with a conical hopper into which concrete is placed. A tremie avoids washout of cement from the mix due to turbulent water contact with the concrete while it is flowing. The photos show that both the tremie method and the direct pour method were used to fill the piles. The next major step was building the pile cap.



多次组织学生上栈桥参观施工作业过程，这座大桥的寿命比这些学生的还要长。

2016年11月9日，主桥第一根桩基浇注现场

On several occasions students were taken to the platform bridge to witness the construction process. The bridge will outlive these students.

多次组织学生上栈桥参观施工作业过程，这座大桥的寿命比这些学生的还要长。

The Pile Cap
围堰

A pile cap is a thick concrete mat that rests on the piles that have been driven into the seabed to provide a suitable foundation to anchor the ends of the arches. As part of the pile cap is underwater, a water-tight compartment is necessary to construct the pile cap. Generally, a cofferdam, a temporary box surrounding the piles, is used to keep the water out.

After the piles were driven into the sea bed, a steel platform with holes was dropped onto the piles. It was held in place initially with struts welded to the piles. The platform was the bottom of the cofferdam. The sides were sheet steel strengthened with steel beams made ashore. By removing the struts, the cofferdam can be lowered at a later stage for constructing the pile cap. Seawater would be pumped out from the cofferdam so built to prepare and pour concrete.

由于有一部分承台在水下，因此需要一个防水隔间。通常使用围堰（即围绕桩基的临时箱体）隔离水流。

当桩基首次打入海底时，它会穿过一个带孔平台。这个平台就是围堰的底部。围堰两侧采用经钢梁加固过的钢板。

Lowering the cofferdam

This series of photos shows the cofferdam of one of the main piers being lowered. The process takes hours. After lowering, the bottom is sealed with a concrete slab. The slab is thick enough so that its weight is sufficient to resist hydrostatic forces to lift it. The water is then pumped out creating a dry working environment inside the cofferdam.

围堰下放

这一系列照片显示了主墩围堰的下放过程。该过程历经数小时。下放后，围堰底部用混凝土板密封。混凝土板必须足够厚，这样其自重便足以抵抗静水压力而不至于被掀起。之后，用泵将水抽出，从而在围堰内形成干燥的作业环境。

These photos show the middle pier of the bridge. Once the cofferdam was completed, pouring concrete into it started on 13th May 2017 (above). Pouring was completed on 20th July 2017 (below).

2017年5月13日，主桥首个承台混凝土浇筑。
2017年7月20日，中马友谊大桥主桥承台全部施工完成。

This photo, taken on the day the pouring of concrete into the main pier cap started, shows the inside of the cofferdam. Note the construction of the cofferdam, the number of piles and their placement. Dated 13th May 2017.

2017年5月13日，主桥承台混凝土浇筑

Reinforcement of one of the main piers. The arch legs are seen on either side. The pipes in the foreground take water to the pile cap to prevent cracking due to high temperature.

2017年6月15日，主桥承台基座模板安装及加固

On the left is a photo showing the reinforcement of the pile cap and the start (skewback) of the arch legs.

The photo below shows the pile cap after the concrete has been poured. The pile cap is a massive block of concrete which distributes the load equally over the seven piles and thus over a greater area of bearing potential. It also serves to stabilize individual piles increasing overall stability of the piles and provide the necessary combined resistance to stress set up by the superstructure. Note that the live load, the dead load and the environmental load are all transmitted to the pile cap.

The upright vertical (red) tubes supporting a horizontal platform are not part of the pile cap. They are temporary supports (scaffolding) for constructing the bridge deck over the open spandrel. They also form the scaffolding for constructing the skewback from which the arch rings (legs) start.

下图显示浇灌混凝土后的承台。它是一个巨大的混凝土块，重量平均分配到七根桩上，保证了桩的稳定性。

支撑水平平台的红色钢管并不属于承台。它们只是桥面板施工期间的临时支撑结构。

左边照片显示的是承台中的钢筋以及拱座。

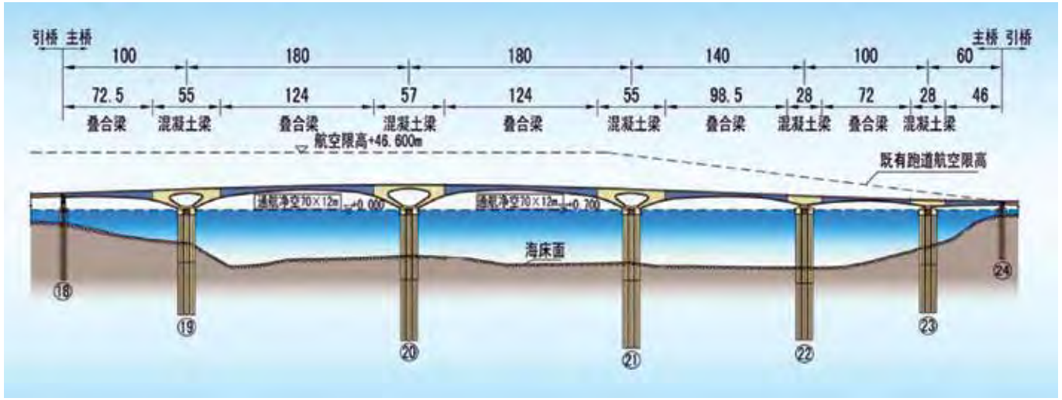
The photo shows the arch rings being started off from skewback of the pile cap. The reinforcing bars are in green as they have been encased in epoxy resin to reduce corrosion. The weight of the arches and other loads of the bridge are borne by these pile caps. This photo was taken on 5th July 2017.

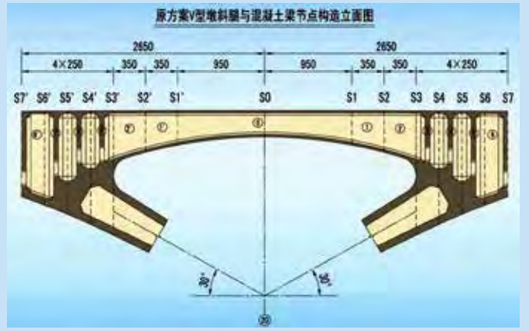
该照片摄于2017年7月5日，展示了T构的施工情况。

The Arch Rings
V墩

The arch ring is the curved part of the main supporting elements of the bridge. The China–Maldives Friendship Bridge is a multi-ring arch bridge with four main rings and two half rings. The rest of the bridge deck constitutes the approaches to the arches of the bridge. This chapter describes the construction of the arches — the main superstructure of the bridge.

V墩是大桥主要支撑结构，呈曲状。中马友谊大桥为六跨连续刚构桥。桥面板贯通全桥，将引桥和主桥V构相连。本章节描述的是大桥主要上部结构——V构的施工过程。





The arch legs shaped like a V started off from the pier cap. This photo is dated 3rd August 2017.
2017年8月3日，中马友谊大桥主桥19#墩V腿第一节段混凝土浇筑

The bottom of the open spandrel above which is the bridge deck has a formwork made of steel as steel is stronger and easier to shape into the curve required. The bottom of the arch leg formwork is supported by six rods.

V构施工采用钢制模板，其强度高，也更利于曲面造型。

In this photo dated 2nd August 2017, the deck above the spandrel is being poured. To extend the arch leg, a steel structure will be built atop to hang the formwork.

2017年8月2日，中马友谊大桥主桥墩身0号块混凝土浇筑

Balanced Cantilever Construction

Except for the crown, the arch rings were built using balanced cantilever method. In this method, the arch rings are progressively built on each side of the pier in a balanced manner to minimize load unbalance and longitudinal bending in the pier and its foundations. In the construction phase, the deck is self-supporting, which also supports erection equipment. This construction method is particularly advantageous on long spans in marine operations where formwork cannot be supported from ground.

A “hanging basket” was used to extend the arch legs. The hanging basket is a structure that is able to move along the bridge, anchored on the already completed deck. The structure is used to pour concrete symmetrically from two ends of a pier. The components include the hanging system, travelling system, bearing structure, anchor unit and operation platform.

一个“挂篮”被用来延长拱脚。挂篮是一种能够沿着桥移动的结构，它固定在已经完成的桥面上。该结构用于从桥墩的两端对称地浇注混凝土。包括悬挂系统、行走系统、轴承结构、锚机和操作平台。

2017.12.3 Basket Preloading Completed at 19# Pier of the main bridge on Malé Side (V Leg).
2017.12.3主桥#19墩马累侧挂篮预压完成（V腿）

Pouring of concrete on the main bridge deck above spandrel and top side of the box girder on 7th January 2018.

2018年1月7日，主桥混凝土箱梁混凝土浇筑

Negative bending governs balanced cantilever construction, and this often requires box sections with a thick bottom slab at the root of the cantilever and many longitudinal tendons in the top slab. The thickness of the box sections as well as holes for tendons can be seen from the photos.

Dated 8th October 2017, this photo shows the work being undertaken to extend the legs of an arch.

2017年10月8日主桥挂篮钢筋绑扎

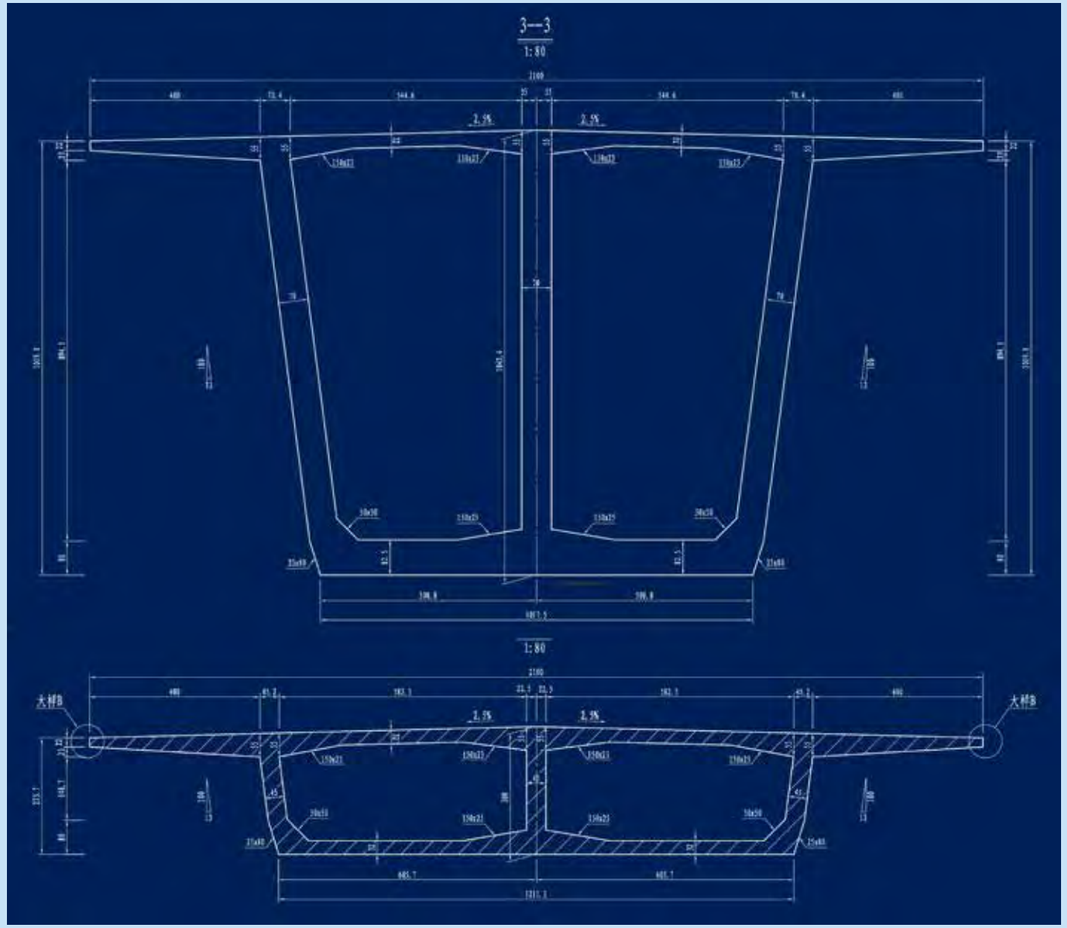
These photos show how the arch legs start off from the pier cap and extend towards the crown of the arch. Balanced cantilever construction does not make use of supports at ground level enabling erection of the arch over the sea. The photo on the left shows the inside of one of the arch compartments (voids); there are two. Note the height and the steel formwork. Closer to the crown the arch formwork inside was made of wood on steel frameworks.

Arch legs being extended using the “hanging basket” method.

拱腿采用“挂篮”法进行延伸。

Formwork for concrete box girder being built over the approach bridge. Note the steel framework and plywood facing.

引桥上的混凝土箱梁模板。注意钢框架和胶合板面。



The above blueprint shows that the arch depth gradually decreases from the leg towards the arch crown. The depth appears to decrease about threefold within this distance. The depth of the concrete of the bridge deck is a constant 32 centimetres.

The depth of the bottom layer varies from 82.5 centimetres to 32 centimetres. The bottom layer is thicker because the concrete is under great compression in this area.

The erection of steel box girder sections at the top of the arches

The centre sections (crowns) of the arches were not made of concrete. They were constructed in steel box girder forms in China and then cut into suitable sizes for shipping. The sections were then re-welded together and lowered to the centre section and fixed. The photo on the left shows the box sections on the deck of a ship.

After the arch has been extended with concrete to the necessary extent, a section of the steel box girder section is lifted and fixed to the concrete section. From the photo at the bottom, dated 3rd May 2018, the attachment method to the concrete arch leg is visible. The longer spanning box girder section will be fixed to this section. The steel is protected from rust by a grey epoxy paint.

在拱起到一定程度后，将钢箱梁截面的一部分吊装到混凝土截面上。下图照片拍摄于2018年5月3日，可见混凝土拱脚。跨度较长的箱梁段将固定在本节。用灰色环氧树脂漆保护钢材不生锈

The top photo shows shorter box girders being fixed to the arch leg on both sides.

The photo on the left shows the divided sections being lifted on the concrete deck for assembly.

In the photo at the bottom, the individual box sections have been welded together in a gentle curve , and attachments are fixed to the ends of this long box girder. The end points are used to “launch” the girder to the other end by gradual pushing. This is what is known as “incremental launch method.”

在底部的照片中，个别的箱形截面已经被焊接在一个平缓的曲线上，并且附件被固定到这个长的箱梁的末端。终点是用来“发射”到另一端的梁逐渐推进。这就是所谓的“增量发射法”。

①

The large box girder section, almost 50 metres long, is first assembled on trolleys on the deck of the already completed section of the bridge. Then, after fixing end supports, the box-girder section is pushed to the other end of the arch by large hydraulic jacks. The long arm fixed to the section reaches the other end before the section loses balance. Thereafter, the section is lowered slowly into place and fixed.

④

1. On 24th June 2018, the process of pushing the steel box girder between two piers of the main bridge

2. On 29th June 2018, the steel box girder between the two piers of the main bridge.

3. On 19th June 2018, the steel box girder being placed between two piers of the main bridge.

4. On 3rd June 2018, the main bridge steel box girder pushing operation using hydraulic jacks.

1. 2018年6月24日，主桥其中两个墩之间钢箱梁顶推的过程

2. 2018年6月29日，主桥其中两个墩之间的钢箱梁顶推到位

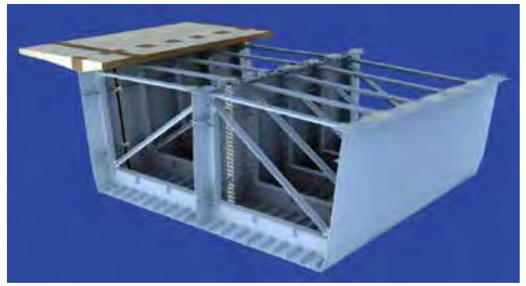
3. 2018年6月19日，中马友谊大桥主桥其中两个墩之间的钢箱梁顶推到位

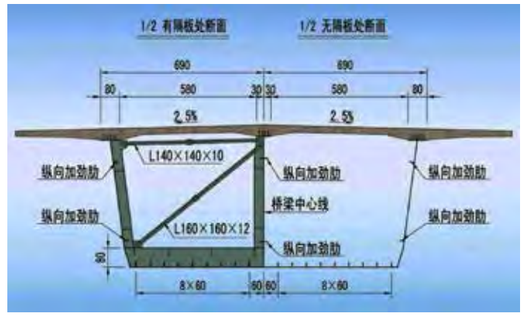
4. 2018年6月3日，主桥钢箱梁顶推作业过程

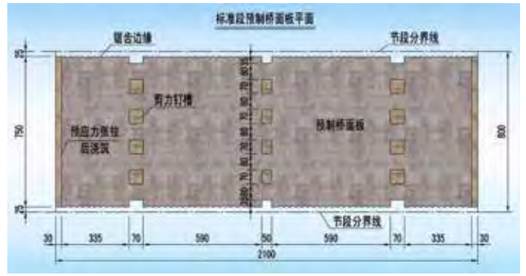
②

③

ބޮކްސް ގާޑަރ ބައި ދެ ފްލޭގެ މެދަށް ފުށުއްސުމަށް ކަނޑައެޅި (9 ޖޫން 2018).
Box-girder section being pushed into place on 9th June 2018.
2018年6月9日，主桥钢箱梁的顶推过程







These photographs show the final construction phase of the main bridge. The photos on the facing page were taken from the artificial beach on the east end of Malé. In the top photo, one of the box girder sections had been lowered and fixed at the crown. In the bottom photo both had been lowered into their respective positions.

The bottom photo on this page, taken on 24th August 2018, shows a static test of the bridge. The static test was conducted by placing heavy vehicles end to end on the crown of the arch. In some bridge construction work, the whole bridge is loaded with vehicles for the static test. However, this was considered not necessary for this bridge.

这些照片显示了他主桥的最后施工阶段。正面的照片是从马累东部的人工海滩拍摄的。在顶部的照片，其中一个箱梁部分已降低在固定的冠。在底部的照片都被降低到各自的位置。

本页的底部照片，摄于2018年8月24日，显示了该桥的静态测试。通过在桥上放置升沉车进行静力试验。在一些桥梁建设工作中，整个桥梁都装有车辆进行静力试验。然而，这座桥并不需要这么做。

The Approach Bridge
引桥

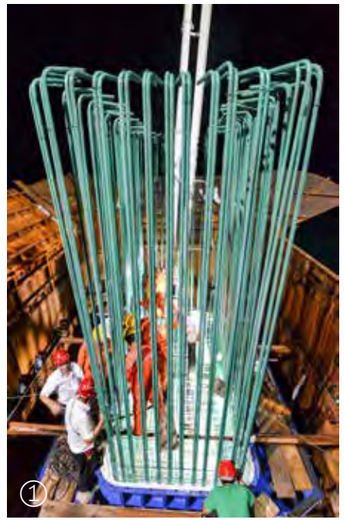
From a structural point of view, the bridge consists of two types of spans. The spans in the deeper sea constitute continuous box girders with variable cross section; those at shallow areas (numbered 1 in the photo above) are straight girders or beams. In the photo above, the section constituting arches are marked as 2.

There are four full arches (or rings) and two half arches in the whole bridge. None of the arches are symmetric. This chapter describes how the girder or beam bridge or the approach bridge was constructed.

The approach bridge from Male'-side is in a shallow arch when viewed from the beach. The piers are made of smaller-diameter piles, and less in number than the V-shaped piers. The spans between the piers are shorter (about 30 metres) and the bridge deck rests on girders between the piers. The construction method used for this section of the bridge was quite different.

This sequence of photographs shows the construction of approach bridge piers. First, the pile casing is sunk and the inside is excavated. These pile casings are much narrower than the ones used for arch piers. Concrete is poured into the piles after placing the reinforcement cage inside. The pile cap is built using a cofferdam under water and a column rises from the cap to form the T-shape pier on which the I-beams are placed.

这一系列照片展示了引桥桥墩的施工。一是沉桩，内挖。这些桩的套管比拱墩要窄的多。把钢筋笼放在里面后，将混凝土灌注桩。承台是用水下围堰建造的，柱顶从帽柱上升起，形成工字梁的T形墩。



1 The pier column starts underwater from the pile cap built using the cofferdam.

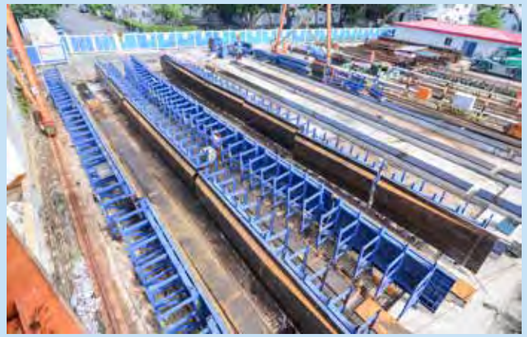
2 The T-shaped cap beam formwork assembled ashore for testing.

3 Reinforcement for the I-beam pier cap. Note the plastic pipes for tendons.

4 The pier cap being filled with concrete.

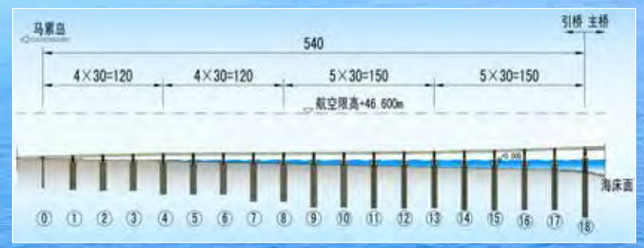
5 Completed pier caps and some caps under construction. Near beach there are twin columns for each pier. The piers are 2550 mm wide.

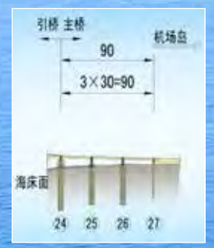
1通过围堰在水下浇筑墩柱。
2T形帽模板安装在岸边进行测试。
3工字梁墩承台的加固。
4墩帽内填充混凝土。
5已完工的墩帽和一些正在施工的盖帽



The I-beams were made using steel formwork and epoxy-coated reinforcement bars below two gantry cranes. Three plastic pipes were in each beam to allow for post-tensioning using about 16 tendons. Once completed and cured, they are taken to the bridge on trolleys running on tracks. An incremental beam launcher was used to position the beams between two piers.

工字梁采用钢模板和环氧树脂涂层钢筋在两台门式起重机下进行。一旦完成，他们被带到桥上的电车轨道上运行。采用增量式梁式发射装置对两个桥墩之间的梁进行定位。





ތިރަ ހިއްކާފައި ދެފުށްތަކުގެ ދަށުން ގެންދާ ގޮތަށް ތައްޔާރުކުރެވުނު ބީމުތަކާ ގާތްކުރެވުނު ފޮޓޯ (19 ނޮވެމްބަރ 2017)

Prefabricated beams or girders were used for spanning the piers in the approach bridge (19 November 2017).

2017年11月19日，引桥预制梁架设景象

The photo below shows some spans of the approach bridge laid with 10 I-beams in each span. The I-beams are about 30 metres long and 1.8 metres deep. The width at web is 0.7 metres. Normal width is 0.3 metres. There are secondary beams connecting the I-beams cross-wise at two places.

In the photo further down, the I-beams have been completed and the deck is ready to receive the 250 mm thick deck slab. Note the rail tracks used to transport the I-beams on trolleys to the bridge.

The aerial photo on the right shows the approach bridge almost complete. It was taken on 29th April 2018.

Ancillary Works
附属工程

Some works associated with the bridge but directly unrelated to the structure of the bridge were undertaken concurrently with the later stages of bridge construction. These works include the traffic and pedestrian railings, approach roads and similar projects.

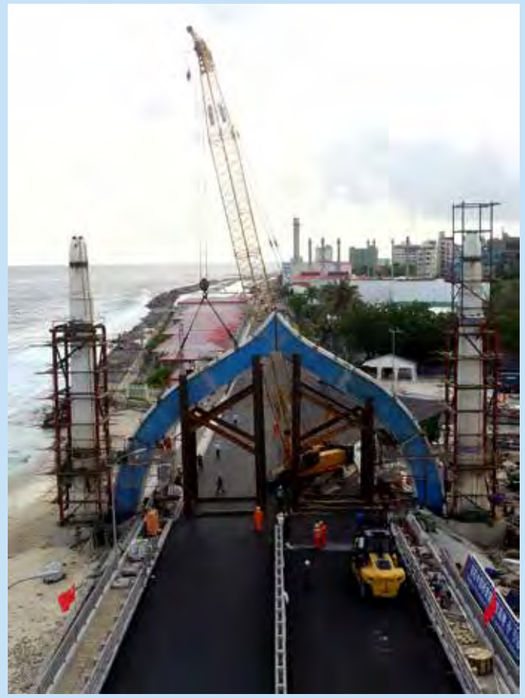
Construction of the Gateway

The gateway is an arch constructed of steel at the entrance to the bridge. It serves three main purposes: first, it defines the entrance to the bridge proper; second, the gateway gives a prominent place to write the name of the bridge; and third, because of its arch-style and two minaret-like structures which gives support to the arch, there is a semblance to a familiar local architectural style. The photo, taken eight days before the opening, shows the construction of the gateway. The original name (China-Maldives Friendship Bridge) was too long to be written on the gateway in Dhivehi. It was shortened to “Sina-Male’ Bridge” [China-Male’ Bridge] to fit the available space.

The sequence of construction steps as the steel gateway and supporting minarets were being built. The bottom photo is dated 12th June 2018.

建设景观拱门

一系列工程正在建设中，如钢铁拱门和起支撑作用的尖塔。下图摄于2018年6月12日。



Construction of the Approach Roads to the Bridge

Perhaps, the most significant of the ancillary works associated with the bridge is the construction of the road between the Hulhulé end of the bridge and Hulhumalé. A bridge to Hulhumalé will not serve its purpose without this link road. The construction of this roadway was undertaken under a separate contract. There were other road works associated with the bridge including the approach roads to the bridge from Malé side and that from Hulhulé side.

The photo above shows the link road from the bridge to Hulhumalé. The road is about 4 kilometres long and has four lanes. The road is just below the aircraft approach path to Hulhulé airport runway. Earlier there was a narrower road from the airport to Hulhumalé. The wider road required extensive reclamation.

大桥引道的施工

上面的照片显示了从大桥到胡鲁马累的连接路。这条路约4公里长，有四条车道。它正好处在飞机航道的下方。早些时候，从机场到胡鲁马累有一条较窄的道路。大规模填海才能有宽阔的道路。

ބްރިޖާ ބައްދަލުވާ ތަންތަނުގެ ކާރުތައް ހަމަކުރުން.
The sealing of bridge and approach roads.
封闭大桥和进场道路

These photos show the sealing of the southern approach road in Malé. These were taken on 11th August 2018.

这些照片摄于2018年8月11日，展示了马累南部接线路铺设沥青的过程。

Bridge railings and lamp posts

As the bridge-opening date neared, there was a mad rush to finish the ancillary works associated with the bridge. Some are more essential than others. The erection of the lamp posts and traffic and pedestrian railings was a priority. There were 754 workers on site in the peak hours, who operate in 2 shifts within 24 hours and 7 days a week.

Due to the corrosive environment, all the railings were made of stainless steel. Traffic railings (barriers) are square heavy-gauge stainless steel pipes bolted to stainless steel uprights.

桥梁栏杆和灯柱

由于环境腐蚀性强，所以所有栏杆均用不锈钢制成。交通栏杆（护栏）是方形、重型的不锈钢管道，用螺栓固定到不锈钢立柱上。

Provisions for Electrical Power Cables and Water Pipes

铺设电缆与给水管

At some stage in the design process, a decision was made to interconnect the electrical grid of Hulhumalé and Malé requiring a path for electrical power cables to be laid along the bridge. This decision is sensible because there is an increasing demand for electrical power in Malé but little space to expand the powerhouse which is located in a densely populated area. The interconnection of the electrical grid of Malé, Hulhulé and Hulhumalé will raise the power requirements to a level for which more efficient large generators can be installed. A similar decision was made for water supply as well.

The diameter of water pipe was 500 mm. The water pipes are placed and connected from Male' to Hulhumalé via airport island. The total length of the water pipe supply in this project was 2160 meters. On the bridge, the pipe was encased in insulation and covered with stainless metal sheets. The high voltage cable on southern ledge of the bridge was designed to carry 132 kV.

The water pipe (blue) was covered in thick insulation about 8 months after bridge opening. The pipe has a length of about 2160 metres and a diameter of 500 mm. It rests on a 750-mm wide ledge on the western side.

在大桥通车约8个月后，给水管上裹了一层绝缘材料。给水管道总长约2160米， 安置在桥面西侧75厘米宽的预留平台上。

The ledge for the electrical cable. This ledge is also about 750-mm wide. Both ledges decrease the width of the bridge available for traffic. As of June 2019, the electrical cable has not been laid. The ledge is 250 mm thick.

照片中是铺设电缆的预留平台，同样宽75厘米。截至2019年6月，电缆尚未铺设。该平台厚为25厘米。

The Bridge Opening
大桥通车

The initial scheduled date for bridge opening was 26th July 2018 in time for what is locally called the Independence Day— the day Maldives left British protectorate status. The bridge was finally opened on 30th August 2018 in the evening around 8:30 p.m. The presidential elections were to be held on 23rd September 2018.

The opening day was marked by a general festive mood across the whole nation. As the time of opening neared, the eastern streets were thronged with joyful men, women and cheerful children trying to get a view of the grand opening. The Maldives' President Abdulla Yameen and Wang Xiaotao, Chinese government special envoy and chairman of the China International Development Cooperation Agency, officiated at the opening ceremony.

Wang, on behalf of the Chinese government, congratulated Yameen on the opening of the China-Maldives Friendship Bridge, calling it an iconic project by the two countries to co-build the 21st Century Maritime Silk Road under the Belt and Road Initiative. Yameen expressed his gratitude to the President and the Chinese government for their keen support in realizing the Maldivians' longed-for dream of a cross-sea bridge. He said that it took 3 years and 11 months from start of discussions to finish.

Fifteen hundred other Maldives government officials, diplomatic missions and representatives from all walks of life also participated in the opening ceremony.

The bridge was opened by the President and the Chinese envoy by lighting up the entrance gateway to the bridge simultaneously by remote control in the evening on 30th August 2018.

Afterwards, a Chinese lion dance and local singers entertained over 1500 people who were present for the opening. The event, shown live on television, was watched by the great majority of the citizens. An unprecedented light show and fireworks illuminated the starry sky from the bridge.

2018年8月30日晚上，马尔代夫总统和中国政府代表同时按下遥控，点亮大桥景观拱门。

随后，一场中国舞狮和一首当地歌曲点燃了在场1500多人的热情。绝大多数马尔代夫民众通过电视直播观看这场活动。一场前所未有的灯光秀和烟花表演照亮了桥上的星空。

Buses carried VIPs across the bridge after the opening. The next day, on 31st August 2018, as a publicity event, six marriages were officiated on the bridge. The photo below was taken on 7th September 2018, the day the bridge was opened to the public. Visitors came from all over the Maldives to view the bridge in the following four months.

开幕式后，公共汽车载着贵宾们驶过大桥。第二天，即2018年8月31日，六对新人在大桥上举行了婚礼，为大桥作宣传。下面的照片摄于2018年9月7日，这一天大桥向公众开放。在接下来的四个月里，马尔代夫各地人们来此参观大桥。

Removal of Temporary Trestle Bridge

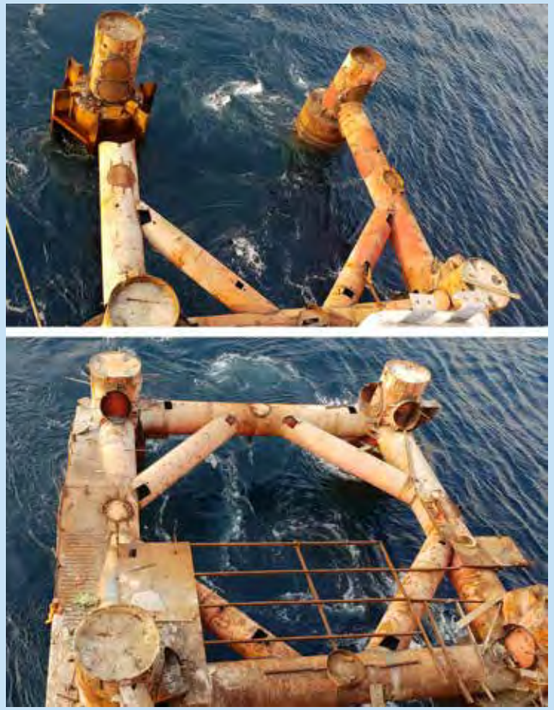
The temporary trestle bridge was one of the earliest structures to be built for constructing the bridge proper. It was the last structure to be removed after the bridge was completed. Work on dismantling the trestle bridge had begun soon after the arches were completed and vehicles could be driven across the bridge. However, the removal of the piles driven into seabed and some platform structures remained after the bridge was opened. The photos on this page were taken in December 2018.

拆除临时栈桥

Local newspapers reported that by 28th January 2019, most of the piles for the temporary trestle had been removed. The piles were cut at seabed level and raised by a barge crane.

临时栈桥是为了便于建设大桥而搭设的最早的结构之一。它也是大桥建成后要拆除的最后一部分结构。拆除工作在桥梁主体完工后且交通车辆可以往返桥上时就已经开始实施。然而，在大桥通车后，打入海底的桩和一些平台结构仍然存在。本页面所示照片均摄于2018年12月。

截至2019年1月28日，据当地媒体报道，临时栈桥上大部分桩已被移除。这些桩是用浮吊在贴近海床的位置切割并吊起运走的。



Remediation of Sea Spray Issue on Bridge Deck

Soon after the approach to the main bridge from Hulhulé was completed, it was noticed that during high tide and when the sea is choppy, waves from the south-east would lash onto the bridge sending sprays of seawater onto the deck. The bridge deck at this area was almost constantly wet for this reason. If the bridge had started further back from Hulhulé raising the deck higher at land's edge, the deck could have been dry. As a temporary measure, a wall about 2 metres high with a poster facing the deckside was placed on the south-east railing. For six months after the bridge opening, this temporary fence protected the users from the salt spray. A more permanent solution was required.

Work started on a permanent solution in February 2019. The lagoon on the eastern side was reclaimed to about 30 metres towards the sea, and the temporary fence was replaced with a 2-metre high concrete wall. However, at the northern approach to the bridge, the waves lashing on the breakwater continued to send salt sprays onto the approach road. The breakwater project was completed by the end of May 2019.

浪溅上桥问题整治

人们在胡鲁累与大桥间的引桥建成后注意到，在恶劣海况下，有时会有来自东部的海浪撞击堤岸，浪花飞溅到桥面板上个别区域，导致桥面潮湿。如果在胡鲁累的路缘处把大桥进一步向上抬升，那么桥面板便能保持干燥。由于航空限高，所以，在东侧栏杆上建造一堵约2米高的墙，作为临时措施。在大桥开通后的六个月内，这个临时围墙保护行人或车辆免受浪溅的影响。不过，要解决这个问题仍需要一个永久性解决方案。目前该工程已经完成。

Acknowledgements

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- Photo on spread 153–154 by Ismail Niyaz Mohamed.

Translation: A historical review of the development of the islands close to Male' and the idea of connecting these with a bridge by Ahmed Shiyam

The Idea of a Bridge

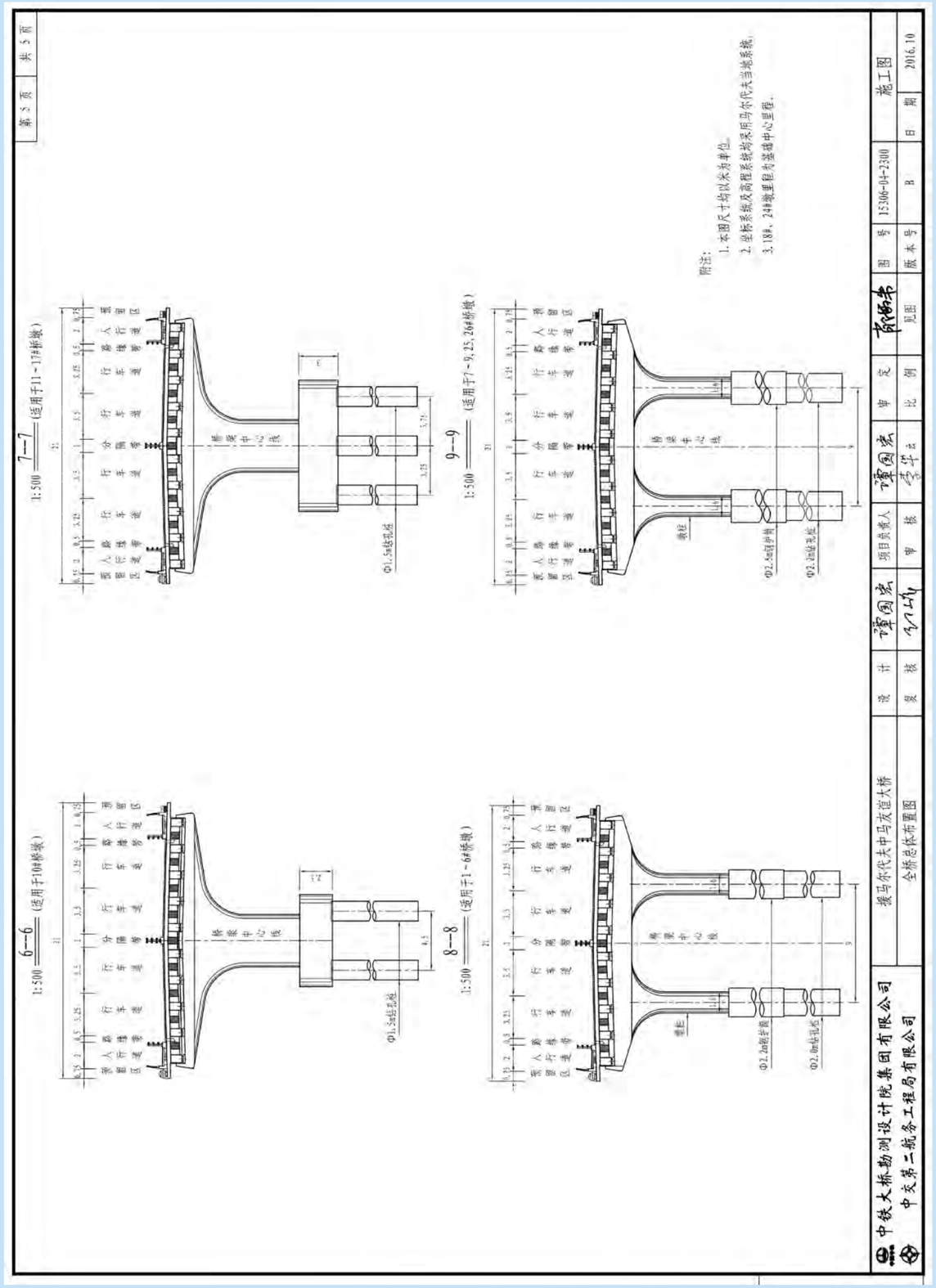
Mr. Mohamed Amin Didi, the President of the first Republic in the Maldives was a well-travelled visionary with an understanding of the Western world of his time. During the early 1950s, The President had envisaged in his article in the daily newspaper *"Viyafaari Miadhu"*, predicting that in the future, the overpopulating of Malé (the capital island-city) will reach a point when Hulhulé and Viligin'li (the two islands flanking Malé, now known as Hulhumalé and Vilimalé) would have to be urbanized as the suburbs of Malé to deal with the issues of land scarcity. He reasoned out that the shortfall of space for homesteads and recreational activities in Malé can be best served by inhabiting both those islands. He stated that this would happen in the future. He brought the idea to the attention of the public and the government. Thus emanated a distant dream of his and saw Hulhulé's transition as an economic hub. He foresaw that the population growth of Malé would compel such an action.

Mr Amin Didi's term as the first President of the first republic came to a tragic end within a span of seven months and twenty-one days. A foreign historian is said to have quoted that "President Ameen Didi was a man far ahead of his times, and the mindset of the rest of the nation then was a century apart". It is reported that the well-known Maldivian author and Dhivehi linguist late Sheikh Hussain Salaahuddheen, too, had shared his belief of an over-crowded Malé in the future that would prompt a migration over to the islands of Hulhulé and Viligin'li.

Following Ameen Didi's Presidency, Maldives again opted for a Sultanate with a figure-head sultan, Sultan Muhammed Fareed I , and a prime minister to execute the affairs of the state. Velaanaage Ibrahim Nasir, the Prime Minister went on to become the first president when Maldives opted to be a Republic for the second time in November 1968. Prime Minister Nasir, on the 7th of February 1968, initiated a project to reclaim the lagoon between Gaadhoo (a small island barely more than a sand bank at the Southern tip of Hulhulé) and Hulhulé to facilitate the extension of the runway at the airport. As part of this airport expansion project, the resident inhabitants of Hulhulé were relocated to the newly reclaimed areas on the west-side of Malé.

President Nasir made an unprecedented attempt to "bridge" the sea between Malé and Funadhoo (the tiny uninhabited island immediately to the north of Malé and about half-way between

Opposite: Elevations of approach bridge piers.



Malé and Hulhulé) and thereon from Funadhoo to Hulhulé'. This attempt, however, proved to be futile due to many factors such as the lack of technical and engineering knowledge and funding available at the time (the early 1970s). It was an infeasible exercise to build an earthen bridge by the use of coral-fill purchased from the coral miners of Fenfushi and Maamigili islands. A steel hull of a worn-out small vessel called 'Thingan'du vina' was also sunk into sea during the filling process. It is said that the old cannons which came off from the forts were sunk into the area as well.

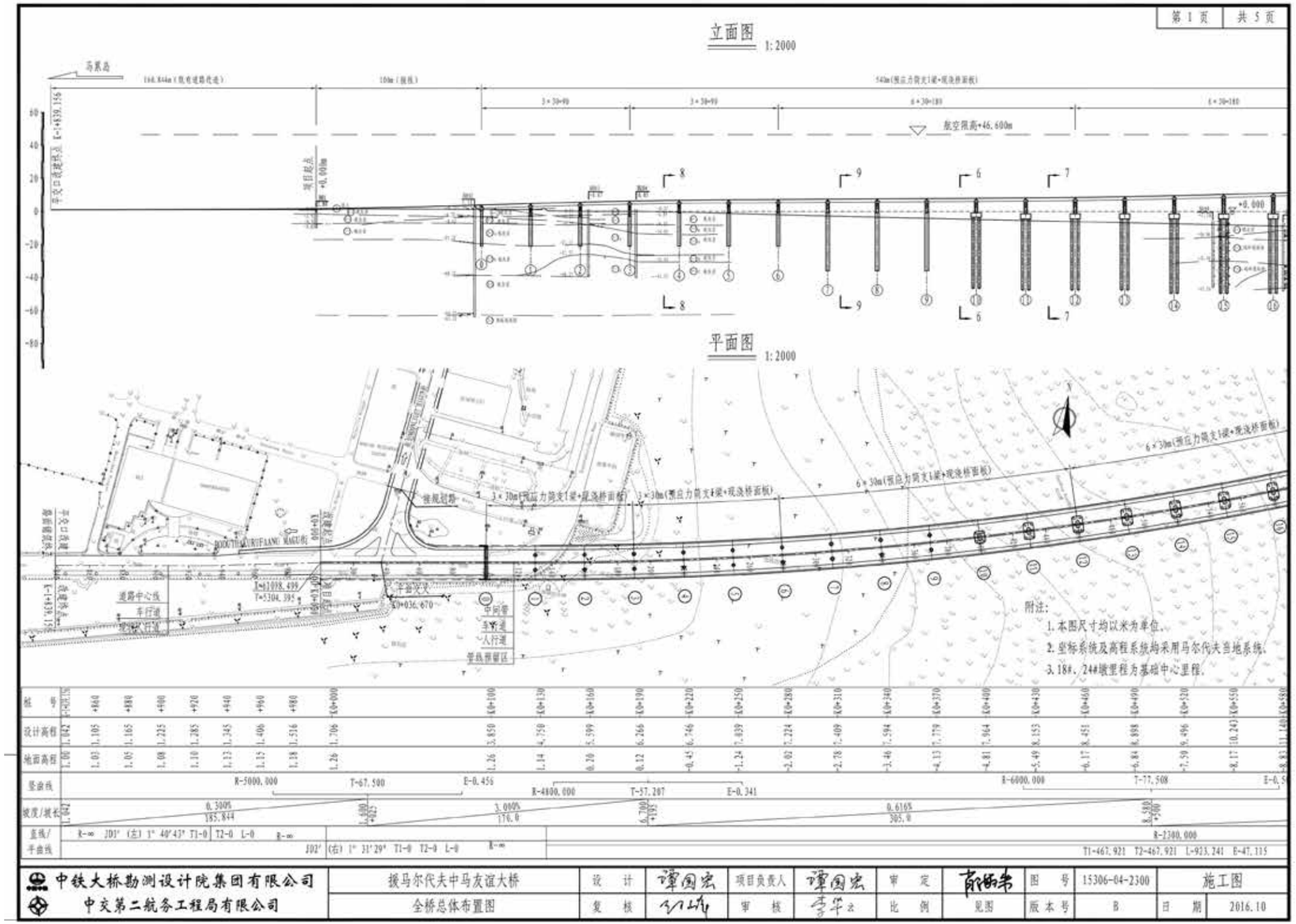
The depths of the sea and the distances were simply beyond the capacity and the knowledge available to the Maldives at the time. This project was abandoned a few weeks after when no progress was shown. As futile as this attempt turned out to be, the dream lived on.

In November 1978, when President Maumoon Abdul Gayyoom succeeded his predecessor Mr Nasir, work was already in progress on the expansion of the International Airport in Hulhulé which was declared open in 1981. When the airport reclamation project was initiated in Hulhulé, land reclamation on the west and south side of Malé was already underway to facilitate housing for the public and other government's land requirements in Malé. The Department of Physical Planning brought in Mr. Borg Hanson, a Danish national, in 1984 to serve as a regional development expert. He proposed that the lagoon of Hulhulé can be developed as a suburban district; however, at that time, no actions were taken.

The nearest tourist resort to Malé on the island of Viligin'li was closed on 19 May 1990 and the island was taken over by the government for residential development. Housing plots were made available along with the development of flats and apartments and other infrastructure for residents to move to Viligin'li. During the year 1992, a visiting Italian delegation proposed to the government to link Malé with Viligin'li by bridge. Later, Mr. Ibrahim Rafeeq, who had served in the Physical Planning Department and as a cabinet minister stated that the Italian group's proposal was to establish a cable car between Malé and Viligin'li. The projected cost was USD 80 million, which also included construction of a school. During this period the Maldivian annual budget was under USD 100 million (the 1992 national budget 1.1 billion MVR). The financial reality withheld a decision to undertake such a project. However, the Italian group proposal was not backed by a valid study on such an undertaking.

Subsequent development plans for Viligin'li drawn up by an Australian national, Mr. Chris Redford, had made an allowance to accommodate a connection of a bridge to Malé, should a requirement arise. There was still no general vision for further reclamation of Hulhulé at this time, though the population of Male' had been growing.

In 1997, when the Hulhumalé reclamation project got underway, most did not foresee that it would eventually grow into such a large undertaking as one would see today. During the latter part of this project, the reclamation was contracted to a foreign company with the necessary expertise. One cannot but help notice the major difference between the Hulhumalé project and the Viligin'li project, whereby in the case of the latter, the apartments and the housing plots were given out at no cost at all as was the customary method. However, in the case of Hulhumalé, the apartments and housing plots were up for sale at a quoted price unlike before. A committee was established in 1993 under the



Plan and elevation of approach bridge, Male' side.

office of the President brought in the proposal of Mr. Borg Hanson for further review. A subcommittee advocated the proposal to take a decision to reclaim Hulhumalé for expansion of the airport and human settlement. Mr. Hamdhoon Hameed who served as a member of that committee and who subsequently became the planning minister, said that the reclamation project at Hulhumalé under Greater Malé programme conducted a series of discussions on the subject of creating a link by a bridge between Malé and Hulhulé. Series of paper works were drawn up to supplement the discussions. Those papers were prepared in view of the dire requirement of additional space for the growing population, to establish housing infrastructure to provide essential services. Those paper works were not exclusively meant for the concept of a bridge.

The vision was to increase the land area to serve the residents badly in need of housing. The main focus of a bridge was envisioned as the means to link Malé. It was decided not to duplicate existing services established in Malé. Engineers from foreign countries and technical personnel were also of the opinion that a bridge was feasible. Mr. Mohamed Hunaif who saw the paper works confirmed the discussions. However, a specific study was not undertaken at this time for the purpose of a bridge. It was contained in a report of the Malé Housing and Urban Development Board.

There were two options for the bridge under discussion. One was for the bridge to be built via Funadhoo Island and the other option was to bridge the sea between south-eastern end of Malé to the southern end of Hulhulé. After two years of discussions, the concept report for the Greater Malé area included linking the strip of islands up to Dhiffushi island in Kaafu atoll. This view was verified and confirmed by two of the former cabinet ministers, Mr. Hamdhoon Hameed and Mr. Ibrahim Rafeeq.

In 1993, Mr. Borg Hanson was back on the project with the Ministry of Planning and this time with the assistance of two senior engineers from Japanese NGO JOCV then operating in Maldives. The team was led by Mr. Abey and work of this team

World's first sea-crossing bridge under deep sea and exposed ocean environment with coral reef geology

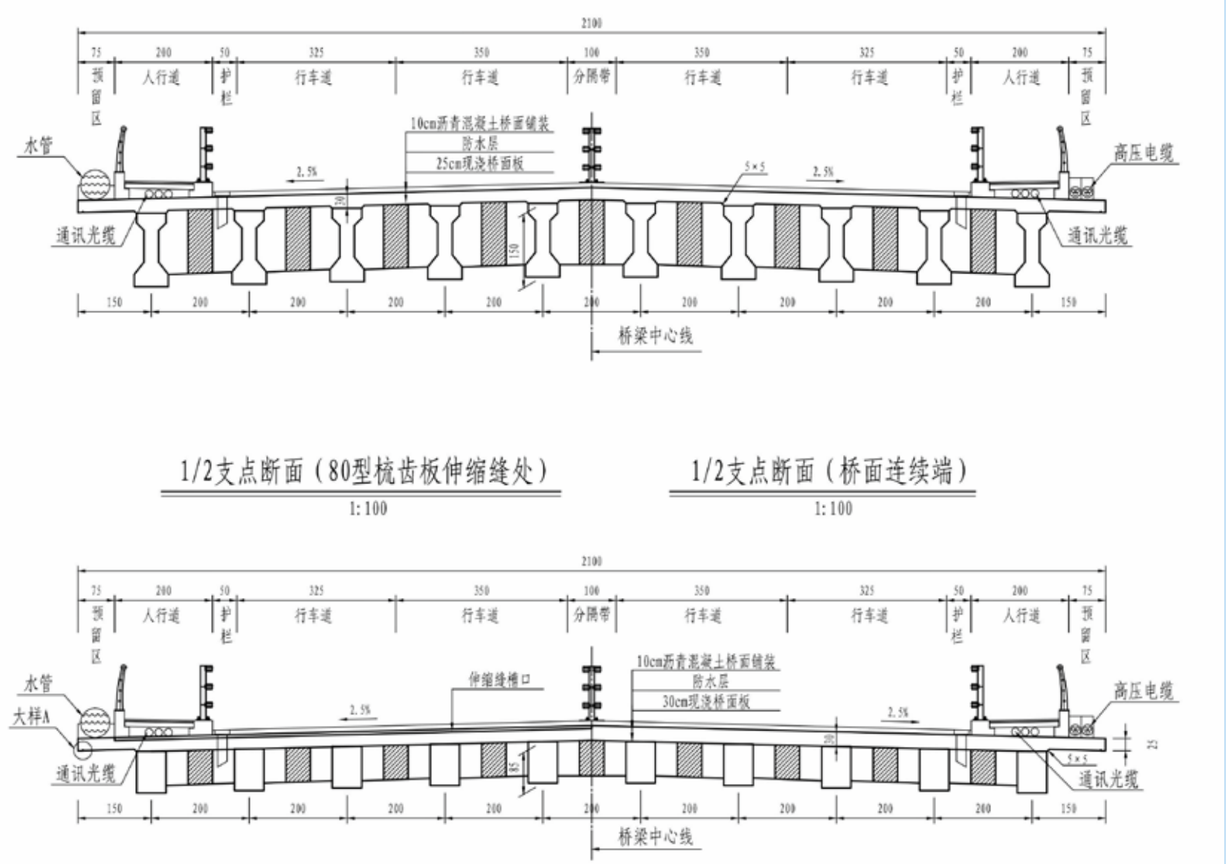
Maldives is the compulsory route for the 21st Century Maritime Silk Road". The construction of the China-Maldives Friendship Bridge is a vivid practice of the Belt and Road Initiative, demonstrating the global governance concept of "consultation, contribution and shared benefits".

China-Maldives Friendship Bridge is the first sea-crossing bridge in Maldives connecting Malé, Hulhumalé and Hulhulé, which has greatly improved the travel needs of local residents. The bridge is a major livelihood project in Maldives and will further promote the economic development of Greater Malé Region.

China-Maldives Friendship Bridge is world's first sea-crossing bridge under deep sea and exposed ocean environment with coral reef geology. It is 2000 meter long and consist of bridges, reclamation embankment and connection roads. The main span of main bridge is 180 meters long, and the main bridge structure is V-shape pier six-span continuous rigid frame, and designed service life for the bridge is 100 years. The bridge commenced on 30th December 2015 and will open to the traffic on 30 August 2018.

The project is organized and implemented by the Agency for International Economic Cooperation of the Ministry of Commerce of the People's Republic of China. Ministry of Housing and Infrastructure represents the Maldivian government to implement the management for the project. The project management unit is C.C.C.C. Highway Consultants Company Ltd., the EPC contractor is CCCC Second Harbour Engineering Co., Ltd., and the drawing design institution is China Zhongtie Major Bridge Reconnaissance & Design Institute Co., Ltd. [C.C.C.C. stands for China Communication and Contracting Company].

— from the display board at construction site



Cross-section of approach bridge.

included the identification of islands that could be developed as hubs in the different regions of the Maldives. This team also worked on the greater Malé concept and Hulhumalé was suggested to be the central urban region and an extension of Malé.

Discussions were also underway to decide the location of the bridge. If the bridge was to go via the island of Funadhoo, all sea going traffic would be flowing under the bridge. At one point, an underwater tunnel was also discussed but the idea was dropped due to too many bends that had to be negotiated on the sea-bed. Once the drawings of the bridge were endorsed by Cabinet, the Ministry of Planning announced it to the general public and opened it for tenders.

The initial bids received reached the range of about a Hundred (100) Million U.S. Dollars which the government concluded as too burdensome. Another bid by an Indian company presented a concept linking Malé to Hulhulé excluding Funadhoo island to avoid complications. By 2005, this project was assigned to the Maldives Airports Company and under the guidance of the Transport Minister as the Airports Company was under the Transport Ministry. The project was now placed for international tender. With over 20 bidders expressing interest towards the project, the project was then opened for public bidding in 2005. SBI Capital Market was awarded the project and was required a report in six months.

Mr. Mahmood Shafeeq who was given the charge of this project in the Malé International Airport Company said that since the project was apportioned in the national budget, the cost would be repaid to the company. Furthermore, as a company it was more convenient to execute the task speedily. No further information were disclosed to the public till the end of 2007.

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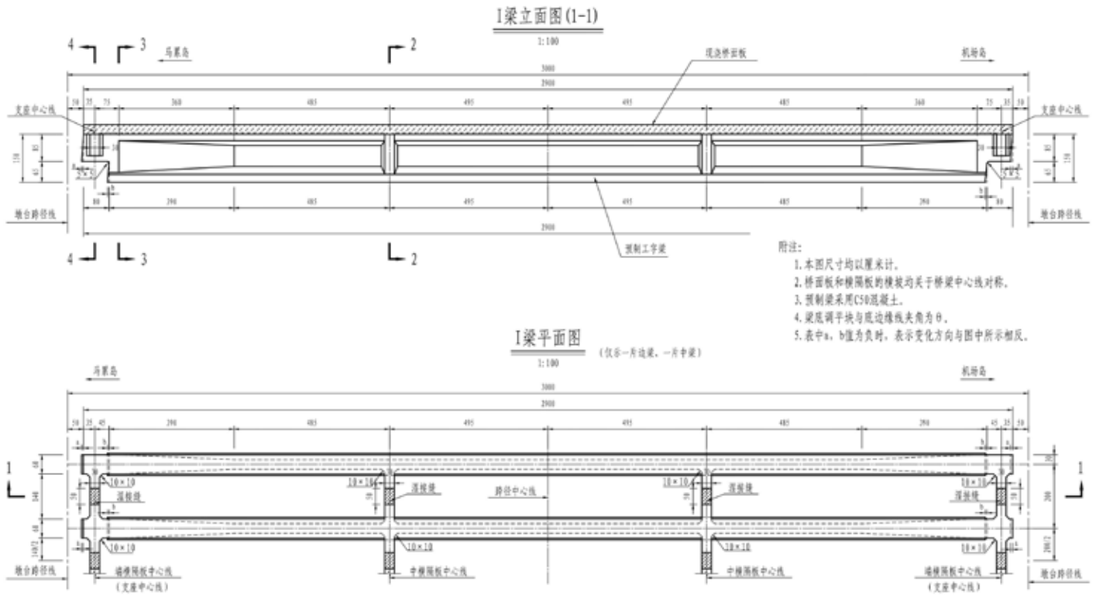
A steel casing is erected in the main bridge construction area, ready for sinking (2016.11.30)

2016.11.30 主桥施工区域一根钢护筒竖立起来，准备施沉



Approach bridge girders.

The concept drawing of the "**Moon Bay Marina**" project and development of the surrounding areas of the south-eastern side of Malé appeared during the countdown to President Maumoon Abdul Gayyoom's final term as president during 2008. The "**Moon Bay Marina**" project, however, was a completely different and expensive project proposed by a foreign investor and the design and planning was to be done by them as they were known to have done similar projects in the Middle-East. Former Planning Minister Mr. Hamdhoon Hameed said that this was to be an upgraded version of the existing "Artificial Beach", the Japanese assisted project, only, this time it was to incorporate a city hotel of 5-star rating. It is believed that "Moon Bay" did not have much involvement of the government. The entire area including the beach was to be used by the investors for their requirements. President Nasheed and his government who defeated President Gayyoom at the 2008 polls, also discussed this project and a bridge between Malé and Hulhulé, noted the then Finance Minister Mr. Ali Hashim.

According to Mr. Shahir (Manager of "Lagoons" — the once iconic football club in Maldives), on his invitation, Sir Gordon Woo, from Hong Kong visited the Maldives in 2010 and did his own study into the possibility of bridging Malé with Hulhulé. Sir Gordon Woo was the promoter of the bridge connecting Hong Kong, Macau and the mainland China across a distance of 50 kilometers—the Hong Kong - Zhuhai - Macau Bridge. This bridge, as of now, stands as the longest bridge in the world. He submitted his design of the bridge to the government. His design included a facility to generate hydro-electricity to supply to the needs of the bridge and sell the excess energy to State Electric Compnay (STELCO). His estimated cost of this bridge was around 250 million US dollars. This concept was shared with President Mohamed Nasheed.

On the 20th of December 2011, after much discussion in the cabinet, the idea of a bridge between Malé and Hulhumalé was made public. These discussions had revolved around a costing with figures ranging from 70 to 100 million US dollars quoted by an undisclosed company, apparently who worked on similar projects dating back to 1946. Although Mr. Ali Hashim who was President Nasheed's finance minister stated that they had tried to construct this bridge. The Government caused Ove Arup & Partners Hong Kong Ltd to carry out a feasibility study of the construction of the bridge on 31st May 2011. After an initial desk study in Hong Kong, a site visit was made by the consultants from 14th to 16th June 2011.

Three alignment options were considered and the best alignment option was decided to be where the Sina-Male' bridge was actually built in view of the dispersal of traffic and the long-term goal of connecting the Greater Male' Region. Three types of bridge structures were suggested, none of which resembled the one actually built by the Chinese. The cost was estimated to be between USD 70—100 million. The report is 118 pages long.

After President Nasheed's resignation in February 2012, his Vice President Dr. Mohamed Waheed Hassan took office as president. The 21-month Presidency of Dr. Waheed never publicly launched a discussion on the subject of a bridge. However, on the day the Sina-Malé Bridge was opened, President Waheed had tweeted that during his term there had been discussions with the Chinese government regarding the bridge.

Progressive Party of Maldives (PPM) came to power in 2013. The proposal of Sir Gorden Woo was presented to the new government. According to Shahir, several leading government officials expressed great interest. Shahir acknowledged the merit of the government's decision to forge ahead with the project of building a bridge with the generous support of the government of China.

President Yameen's decision to proceed with the actual construction of the bridge taking into account the immense aid facilitated by the Chinese government was appreciated and hailed by many. The delivery of the bridge was a high-priority pledge of President Yameen's manifesto. Early in President Yameen's term, in July 2014, the bridge project was announced to the public and opened for tenders attracting nineteen bids from eight countries. Of these nineteen, eleven bids were from China. The next ten or so months, saw many surveys and studies done on land and sea. These studies were conducted by a Chinese company.

President Yameen Abdul Gayyoom visited China in August 2014 to participate in the inaugural ceremony of the Youth Olympics. During his visit he met with President Xi Jinping. On his return President Yameen announced to the media that the bridge project would be awarded to a Chinese company. He further elaborated that during his Chinese visit that he urged the Chinese government to channel all their assistance to the bridge project. Barely a month later President Xi Jinping made a state visit to Maldives on September 14th, 2014. A joint declaration was signed by the two countries to construct a bridge named China —Maldives Friendship Bridge on 15th September 2014.

The bid for this bridge was awarded to a Chinese company by the name of C.C.C.C, a company who specialized in and had a very good track-record for the construction of bridges worldwide.

The vision for a bridge began to realize on 24th December 2015 when construction commenced. A value of 116 million US dollars' worth of grant aid was promised by China and 72 million US dollars as a concessional loan and 12 million US dollars from Maldivian government treasury was allocated for the project. This amounts to a total of 200 Million US Dollars as the cost of the bridge.

The long-held dream of a bridge across the Gaadhoo strait was realized when the bridge was officially opened on 30th August 2018, and traffic began to flow over it a week later. The bridge is an enduring reminder of the generosity of the Chinese people and their government, and the ingenuity of Chinese engineering. It will stand for 100 years as a concrete reminder of the friendship between these peoples, which stretches as far back as the fifteenth century.

In November 2018, a new government was elected and the long-term vision for linking the adjoining islands of Vilin'gili, Gulhee Falhu and Thilafushi was revived. When inquired about the plans, the Minister for Infrastructure during the former administration explained that several designs and cost estimates were made to connect the islands by a series of bridges, roads and causeways. The distance to be covered was 6.7 km of which 2.04 km constitute bridges. The estimated cost was between USD 350 to 438 million.

Construction Speed and Chinese Self-Reliance

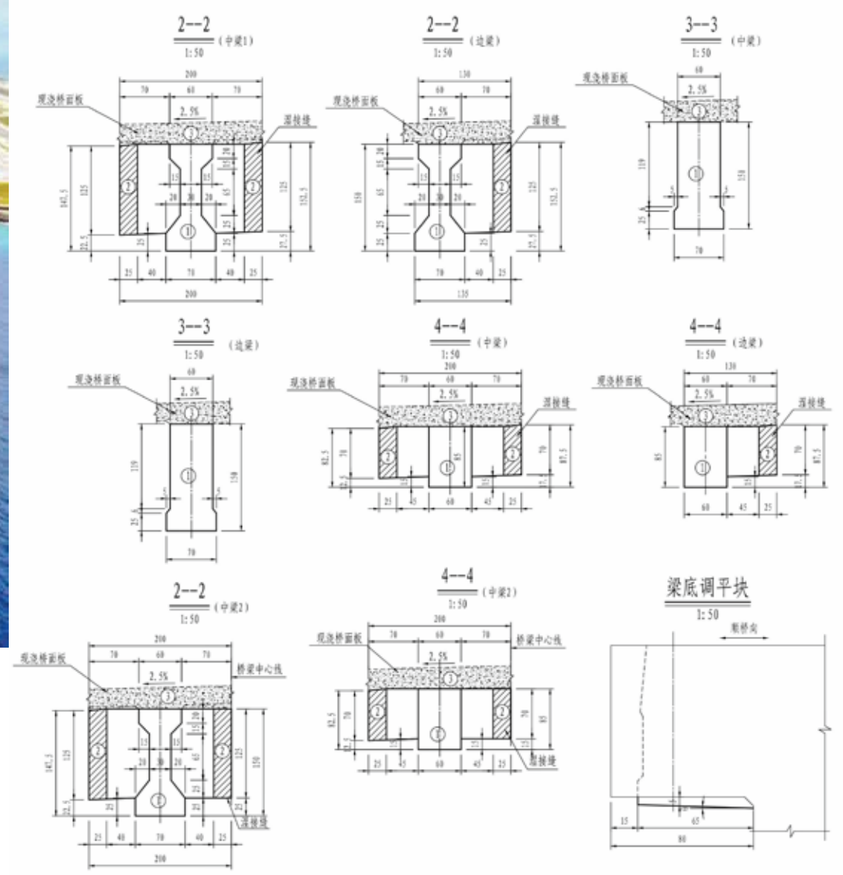
The bridge project was described by its chief engineer, Mr. Cheng Duoyun as “a task that confronted very difficult and huge challenges. Thirty three months was a very short period to complete a task with such constraints. Working in a warm and extremely humid environment on a project of this magnitude rendered a very different experience. It was an important feat to realize for the 21st Century Maritime Silk Road.”

The bridge project in the Maldives proved to be a very different and challenging experience for the CCCC Second Harbour Engineering Co., Ltd of China. The uniqueness of this project, unlike the normal bridge building works carried out in other regions of the world normally across rivers, mountains and valleys, is to have to build it across a deep ocean channel. There were strong ocean currents that flowed in different directions. The support structures had to be built closer to each other due to the depth of the ocean unlike bridges built in other terrains. Consideration had to be given for its close proximity to the runway of Hulhulé airport. Maximum height and minimum level of lower suspension further had to conform to restrictions.

“Normally we space our support structures at about 600–700 meters. Contrary to that we had to place them at 60,100,140 and 180 meters in this bridge. The span of the main bridge was 760 metres long . The remaining sections were 1200 meters.”

C.C.C.C. Company has given a life guarantee of 100 years to the bridge set aside any natural disasters. They consider this bridge as a Chinese icon. Their greatest geological challenge was the under water works. Since both islands were developed from a coral foundation, and the greatest depth between the islands being 50 meters, it ushered an entirely new experience. About 90% of the machinery, equipment and materials used for the project were imported from China. Gigantic heavy equipment took 3 months to reach the site from the date of order. However, the completion of the project earlier than the scheduled date remains as a testament to the efficient speed of the work.

> *“It was an important feat to realize for the 21st Century Maritime Silk Road*
>
> — Mr. Cheng Duoyun
> Chief Engineer



梁端变化段参数表

位置	a (mm)	b (mm)	θ (°)
0#-1#墩之间桥跨	25.5	19.5	1.718
1#-2#墩之间桥跨	24.0	18.4	1.718
2#-3#墩之间桥跨	18.9	14.5	1.260
3#-4#墩之间桥跨	13.6	10.4	0.917
4#-5#墩之间桥跨	8.3	6.3	0.573
5#-6#墩之间桥跨	5.3	4.0	0.344
6#-7#墩之间桥跨	5.2	4.0	0.344
7#-8#墩之间桥跨	5.2	4.0	0.344
8#-9#墩之间桥跨	5.2	4.0	0.344
9#-10#墩之间桥跨	5.2	4.0	0.344
10#-11#墩之间桥跨	5.4	4.1	0.344
11#-12#墩之间桥跨	8.4	6.4	0.573
12#-13#墩之间桥跨	12.7	9.7	0.859
13#-14#墩之间桥跨	16.9	12.9	1.146
14#-15#墩之间桥跨	21.2	16.2	1.432
15#-16#墩之间桥跨	25.4	19.4	1.718
16#-17#墩之间桥跨	27.2	26.8	1.833
17#-18#墩之间桥跨	27.2	26.8	1.833
24#-25#墩之间桥跨	-27.1	-20.7	-1.833
25#-26#墩之间桥跨	-24.8	-18.9	-1.661
26#-27#墩之间桥跨	-21.8	-16.6	-1.489

附注：

1. 本图尺寸均以厘米计。
2. 中梁2为桥中心线两侧纵梁，其余中间纵梁为中梁1。
3. 预制梁采用C50混凝土。
4. 桥面板和横隔板的横坡均关于桥梁中心线对称。
5. 梁底调平块与底边缘线夹角为θ。
6. 表中a，b值为负时，表示变化方向与图中所示相反。
7. 上部施工顺序为：①架设1梁→②浇筑梁间湿接缝→③现浇桥面板。

Details of approach bridge girders.

Construction of the deck as an accessibility link for bridge building works also faced major challenges. The ocean waves were further causing hindrances during the planting of upright piles for support and during welding works.

The work of driving steel pipes to the sea bed, required for the core of the super structure of the main piers of the bridge began on 3rd March 2016. The giant barge crane which was used for the purpose invariably faced a lot of steadying difficulties due to changing tide and ocean currents. It turned out to be a very time consuming exercise requiring immeasurable patience, ingenuity and experience.

According to one of the engineers in charge of piling, the workers had to strive through three to four sleepless nights due to lack of suitable intervals for piling. They attributed the difficult circumstances to the changing tides and strong ocean currents. Surface currents were different from the currents deep down. The Chief Engineer felt deep stress over the anxiety of not being able to complete the work in time. Over 200 work hours were lost. A total of 37 steel piles were erected. Driving in 35 steel pile casings were done on 5 platforms. They weighed 30000 metric tons. Piling works were finally completed on 6th December 2016. Sinking of main steel casings were completed 24 days prior to the set date. The foundation comprised of 129 pipes. The completion of this feat prior to the 19th CPC National Congress served as a valuable gift from the company.

Ocean currents and strong winds posed a great challenge to the reinforcement works. However, capping construction of the main piers was completed 22 days prior to the set date. All

members of the crew who were working on the ocean under scorching heat needed at least 5 liters of drinking water per day to stay hydrated. The public would have seen the crew members who were transported by ferry from Malé to Hulhulé each carrying 5-liter bottles of water with them. These were to keep them hydrated while at work.

In the year 2016, some 90 members of the Chinese workforce suffered bouts of dengue fever. One of the serious patients required blood transfusions from 10 other workers. Regular mosquito repellent spraying was carried out to prevent further infestation. One workman lost a leg due to an accident during the early stage of the work. However, not a single human life was lost during the entire project. The entire workforce was highly focused to complete the project on time. No one had a day off. Work was carried out incessantly 24 hours a day, 7 days a week.

Engineers in charge regularly inspected the quality of sand and bitumen as and when they are brought in. Regular laboratory tests were conducted to maintain the quality of concrete prior to use.

Engineers also regularly met to discuss the accuracy of the works to the original plan with photographic records of the work done under the sea. Regular meetings were held between relevant authorities and work units.

The teams of Ministry of Commerce of the People's Republic of China regularly visited Maldives to meet with the contractor. They also conducted a mid-term review. Regular meetings with the officials of the Housing Ministry were held to solve confronting challenges. Some of those meetings were attended by the then Housing Minister Mr. Muizzu too.

The total workforce of 1000 personnel comprised 700 Chinese nationals and 300 others made up of Indian, Sri Lankan and Bangladeshi nationals. The participating Maldivian teams were members of the Engineering Department of the Housing Ministry, and other officials from that Ministry. They were engaged in logistical coordination activities involving inter-governmental departments. The MNDF and Maldives Police were on hand whenever their support was needed.

No Maldivian labor was used in this project. However Maldivians and Maldivian companies stood to receive benefits during this project. Rental charges occurred by companies who provided cranes, lorries and other heavy machinery. Many

Maldivian sources supplied food items to prepare meals for 1000 strong workforce. Businesses who supplied water, gas and fuel stood to earn from this project. Some of them earned several millions of Rufiyaa.

C.C.C.C. company organized activities dedicated to children as a social responsibility of the company. Maldivians had the opportunity to taste Chinese food and to witness cultural activities. In July 2017, a visit to the bridge was organized for 200 school children.

C.C.C.C. company regularly presented Certificates of Appreciation for services rendered by institutions and individuals. High ranking officials of the Chinese government periodically visited Maldives to inspect the bridge project. Former President Yaameen visited bridge site prior to concrete pouring after the completed piling works.

On completion of this largest ever project in Maldives, up to now, it stands as a testament of Chinese engineering, speed, work management, Chinese robust economy and their great self-reliance.

C.C.C.C. Second Harbour Engineering Co. Ltd.

C.C.C.C. Second Harbour Engineering Company is a wholly-owned subsidiary of China Communications Construction Co. Ltd. As the first main force in Chinese bridge construction, C.C.C.C. Second Harbour Engineering Company has successively built more than 300 influential cross-river, cross-sea and over mountain and gorge bridges, which has rewritten the Chinese record and world record of the bridge construction. It has made important contributions to the transition for China from a big bridge construction country to a powerful bridge construction country. It has been praised by the People's Daily and other media as the 'dream team' of Chinese bridge building.

— from the display board at construction site

ތާއީދުކުރާ 29، 2018 ވަނަ ސަނަވަރީ ބޮޑުބަޑި ފުނިތަކުގެ ދަށް ފަރާތުގެ ފޮޓޯ
April 29, 2018, partial view of the main bridge
2018年4月29日，主桥局部景象

2016 ވަނަ އަހަރު ބްރިޖު މަސައްކަތުގައި އުޖޫން 90
މިހަކަން ޑިގްރީ ހޫނުގެ އަސަރު ކުރިއެވެ. އެކަމުގެ ހާލު
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މި މަސައްކަތުގައި އެއްވެސް މިނެޓެއް ފުރާނަ ގެއްލިފައެއް
ނުވެއެވެ.

މަސައްކަތްތަކަށް ވަގުތަށް ނިންމަން ހުރިހާ މުވައްޒަފުން ވެސް ވަރަށް ބޮޑަށް މަސައްކަތްކުރިއެވެ. ހުއްޓުމެއް ނެތި ހަފްތާގެ ހަތްދުވަހު ކޮންމެ ދުވަހަކު 24 ގަޑިއިރު މަސައްކަތް ކުރަމުން ދިޔައެވެ.

ހިތާމައި ފަދި ގޮތަކަށް ފައްދުމުން ކަމާ ބެހޭ އިންޖިނިއަރުން އާގެ ފެންވަރު ބަލާ ހަދައެވެ. އަދި ކޮންކްރީޓު އެޖެމުގެ ކުރިން ފެންވަރު ބެލުމަށް ލެބޯރީގައި ޓެސްޓު ކުރެއެވެ.

ކުރުމަށް އެއްގޮތަކަށް މަސައްކަތް ކުރެވުނު ތަޖުރިބާކުރިމަސް މަސައްކަތު އިންޖިނިއަރުންގެ ބައްދަލުވުންތަކުން ދިޔައީ ބަލަމުންނެވެ. ކަނޑު އަޑީގެ މަންޒަރު ތަކުރާރުކުރެއެވެ. މަސައްކަތުގެ ގޮތުން ވަރުގަދަ ކުރުމަކީ ކަމާ ގުޅޭނެ ހުރި އިދާރާތަކާއި ޢުނިޓްތަކުގެ ބައްދަލުވުންތަކުގައި ގަވާއިދުން ދިރާސާ ކުރެވުނެވެ.

ޗައިނާގެ ކޮމާސް މިނިސްޓްރީގެ ޗީފް ޑިރެކްޓަރުންނާއި ރައްޔިތުން ޗައިނާއިން ކޮންސްޓްރަކްޝަން ދިރާސާ ބައްދަލު ކުރެވުނެވެ. މިގޮތް ޗާޓް ރިޕޯޓްތަކުން އެނގެން ހުރިއެވެ. ހަމަ އެގޮތަށް ދިމާވާ ގޮންޖެހުންތައް ހައްލު ކުރުމަށް ހައުސިންގް މިނިސްޓްރީގެ މުވައްޒަފުންނާއެކު ބައްދަލުވުންތައް ބޭއްވުނެވެ. ބައެއް ބައްދަލުވުންތަކުގައި، ސީދާ ހައުސިންގެ

އެންމެ މަތީގައިވާ ފޮޓޯގައި އެވަނީ ބްރިޖުގެ ޑެކްގެ ދަގަނޑު ބަހައްޓާ ތަނެވެ. ފިނިކޮށް ދަގަނޑު ފޮނުވަނީ ޕާކުގައި އޮޓޯސް ބްރިޖުން ޗާޓު އަވާފައިވެއެވެ. މެދު ދަސްކުރު ޖަހަހަށް ނުރިސްކުރަނެވެ. ގުދ ޓެބްގައި އެވަނީ ވަގުތީ ގޮތުން އަރާފައިވާ ފާލަމުގެ ބައެކެވެ. ތިރީ ފޮޓޯގައި އެވަނީ ބްރިޖު ރެއިލިންގއަށް ސާފުކުރާ މަންޒަރެވެ.

މިނިސްޓަރ ޑޮކްޓަރ މުހައްމަދު މުއިއްޒު ވެސް ބައިވެރިވެވަޑައިގަންނަވަމުން ގެންދިއުއެވެ.

ޗައިނާގެ 700 މީހުން، ސްރީލަންކާ އިންޑިއާ އަދި ބަންގްލަދޭޝްގެ 300 މީހުންނާއެކު ޖުމުލަ 1000 މީހުން ބްރިޖު މަސައްކަތުގައި ހަރަކާތްތެރިވަމުން ގޮސްފައިވެއެވެ. ދިވެހިންގެ ތެރެއިން ބައިވެރިވި ހައުސިންގ މިނިސްޓްރީގެ އިންޖިނިއަރުން ޓެކްނިކަލް ޓީމުގެ ޗީފާއި ޗީފްސްޕެކްޓަރ ކަންކަމުގައި ސަރުކާރު ތަމްސީލުކުރަމުން ކަންތަކުން ކުރިމަގައި އަދިވެސް ބައެއް ކަންކަމުގައި އެހީތެރިވެދިން ހައުސިންގ މިނިސްޓްރީގެ މުވައްޒަފުން. މީގެ އިތުރުން ދިމާވާ ކަންކަމުގައި ފުލުހުންނާއި ސިފައިންގެ އެހީތެރިކަންވެސް ލިބިފައި ދިޔައެވެ.

މި މަޝްރޫޢުގައި ދިވެހި ފޯރަމަން ބޭނުންކޮށްފައި ނުވެއެވެ. އެކަމަކު ދިވެހިންނާއި ދިވެހި ކޮންޓްރެކްޓަރ މިމަޝްރޫޢުން ވަނީ ފައިދާ ކޮށްދީފައެވެ. އެއީ ކުރުން ހާއި ހަރުމާލާއި ތަކެތި ކުއްޔަށް ދިނުން ފަރާތްތަކަށެވެ. 1000 މީހުންގެ ކެއުންބުއިމުގައި ބޭނުން ކުރާތަކެތި ވިއްކި ފަރާތްތަކަށެވެ. ފެނާއި ގޭސް ތެލުގެ ވިޔަފާރި ކުރި ފަރާތްތަކަށެވެ. ބައެއް ދިވެހި ކޮންޓްރެކްޓަރުން އެތަށް މިލިއަން ރުފިޔާއެއް ލިބިފައިވެއެވެ.

ސީ.ސީ.ސީ. ކޮންޕެނީގެ އިޖްތިމާޢީ ޒިންމާގެ ތެރެއިން މަސައްކަތް ކުރި މުއައްސަސާގެ ތެރޭގައި ކުޅިވަރުގެ ހަރަކާތް ބާއްވައެވެ. އަދި ޗައިނާއަށް ނިސްބަތްވާ ކުއްޖެކުގެ ރަހަ ބުޅާއި ސަކަސް ކުލަވަރުތަކެއް ދައްކައިދީފައި ވެސް އޮތެވެ. 2017 ޖުލައި މަހު ރަށްޖެހޭ ކުލަބާ ކުދިންގެ ތެރެއިން 200 ކުދިންނަށް ބްރިޖު ދައްކައިދީފައި ވަނީ ބޭއްވިފައެވެ.

ސީ.ސީ.ސީ. ކޮންފެރެންސް އުފެއްދިކަން ފޮޓޯ ކޮންޓެސްޓް ކުރިއްސަވާފައި މީހުންނަން ކޮންފިރީގެ ހަނދާނީ ލިއުން ދޫކުރެވިފައިވެއެވެ. ބްރިޖުގެ މަސައްކަތް ކުރަމުން ދިޔައިރު ރަށްޖެހޭ ޗައިނާގެ އިސް މަސްއޫލުވެރިން ބްރިޖުގެ މަސައްކަތް ބައްލަވައިލެއްވުން ޒިޔާރަތް ކުރައްވާފައިވެއެވެ. ރައީސުލްޖުމްހޫރިއްޔާ ޢަބްދުﷲ ޔާމީން ޢަބްދުލްޤައްޔޫމް ވެސް ޒިޔާރަތްކޮށް މަސައްކަތް ނިމި ތަނބުތަކެއް ކޮންކްރީޓު އެޅުމުގެ ކުރިން ބްރިޖަށް ޒިޔާރަތް ކުރައްވައެވެ.

އިންޖިނިއަރުން މަސައްކަތަށް ބެލި ނަމަވެސް ރައްޖެގައި މިފަދަ ހިނގި އެންމެ ބޮޑު މި މަޝްރޫޢު އިން ފެނިގެން ދިޔައީ ޗައިނާ މީހުންގެ މަސައްކަތުގެ ފުރުޞަތުތަކާއި ހުނަރުތަކާއި އިޖުތިމާޢީ ވަރުގަދަ ކަމާއި ފުރުސަތުތަކެވެ.

(ސީ.ސީ.ސީ.) ކޮންޓްރެކްޓް ދެއްވީ. އެ މީހުން މި ބްރިޖް ފާހަގަކުރަނީ ޗައިނާގެ ރަމްޒެއްގެ ގޮތުގައެވެ. ޓެކްނިކަލް ގޮތުން ވެސް އެމީހުންނަށް ދިމާވި އެންމެ އުނދަގޫ ކަމަކީ ކަނޑު އަޑީގެ މަސައްކަތްތަކެވެ. މާލެއާއި ހުޅުމާލޭ ވެސް، މުރަކަތަކުން އުފެދިފައިވާ ދެ ރަށް ކަމުގައި ވުމެވެ. އެންމެ ފުން ހިސާބުގައި 50 މީޓަރ ހުންނަ އިރު މިއީ އެ މީހުން ކުރި އާ ތަޖުރިބާ އެކެވެ. މި މަސައްކަތުގައި ބޭނުންކުރި ހުރިހާ އާލާތްތަކެއްގެ 90 ޕަސެންޓަކީ ޗައިނާއިން އެތެރެ ކުރި ތަކެއްޗެވެ. ބިމަ ބަޑު ތަކެތި އާގެނ ގޮސްގެން މަސައްކަތު ސައިޓަށް ލިބޭ އިރު 3 މަސް ހޭދަ ވެއެވެ. ނަމަވެސް ގިނަ މަސައްކަތް ތާވަލަށް ވުރެ ކުރިއަށް ނިމުނީ މަސައްކަތުގެ ހަލުވިކަން ހަރުގައިދިން ހުއްޓެވެ.

ބްރިޖް އެޅުމަށް މަސައްކަތް ކުރަން އަދާ ތިބޭ އަދި އަޅުމުން ދިޔައިރުވެސް ވަރަށް ބޮޑެތި ގޮންޖެހުންތަކާ ކުރިމަތި ވިއެވެ. ހޫނިކަމާ ޖެހުމާއި ވޭވިލުން ކުރަމުން ދިޔައިރު އެ ހިސާބުގެ ކަނޑު އިންތިހާއަށް ގަދަވުމެވެ. އެހެންކަމާ އެކު ރައްކާތެރިކަމަށް ދޫންޖެހޭ ސަމާލުކަން ވަރަށް ބޮޑެވެއެވެ.

ތަނބުގައި ބޭނުން ކުރާ ފުރަތަމަ ތަތްގަނޑުގެ ހުޅި ކަނޑު އަޑީއަށް ޖެހީ 2016 މާރިޗު 3 ގައެވެ. ބޮޑެތި ރާޅުތަކާ ހެދި ކަނޑުގެ ސަޚްތަކަށްގައި ފާހަގަ ކޮށްފައިވާ ތަންގައި ހުޅި ޖެއްސުމުގައި އޮއިވަރާއި ބާރުމާއެކު ކަނޑުގައި އޮތް އެއްޗެ ބޮޑު ކަރަށް އެކި ގޮތްގޮތަށް ހެލިފެލިވެއެވެ. ބޭރި ރާޅުގެ ސަބަބުން ކެއްތެރިކަމާ އެކު އެތަށް ވަގުތެއް ހޭދަކުރަން ޖެހުނެވެ.

ޕްރޮޖެކްޓް ކުރާ އިންޖިނިއަރުނާ ވާހަކަ ދައްކަމުން ބުނީ ނުނިދައި ހާލު ތިބެން ހަތަރު ދުވަހު ވެސް ތިބެން ޖެހޭ ކަމުގައެވެ. އެއީ ރަނގަޅު ވަގުތު ނުލިބޭތީ އެވެ. އޮއިވަރާ ދިޔަވަރު ކަނޑުގައި ލިބޭ ވަގުތަކަށް އަބަދު ޖެހުނީ ފުރަޔާއި ބަލާށެވެ. މަތީގައި ހުންނަ އޮއިވަރާ އަޑީގައި ހުންނަ އޮއިވަރު ތަފާތެވެ. ކަނޑައަޅާފައިވާ ވަގުތަށް ނުނިމުނުނީތީ އާންމާ ހުރި ހާސް ކަންތައްތަކެވެ. 200 އެއްހާއި ގާތު އިރު މަސައްކަތު ނުކުރެވި ގެއްލިގެން ދިޔައެވެ. 37 ސްޓީލް ޕައިލް ޖެހިއިރު 5 ޕްލެޓްފޯމްގައި 35 ސްޓީލް ޕައިލް ކޯސްއިން އެޅިއެވެ. ބަދުރަށުގައި ތިރީސް ހާސް ބަން ހުރެއެވެ. ޕައިލިން މަސައްކަތް ނިމުނީ 2016 ގެ ޑިސެންބަރު 16 ވަނަ ދުވަހުއެވެ. މައި ތަނބުތަކުގެ މަސައްކަތް ކަނޑައަޅާފައި އޮތް މުއްދަތަށް ވުރެ 24 ދުވަސް ކުރިން ނިންމައިލިއެވެ. ފައުންޑޭޝަނުގައި 129 ހުޅި ހިމެނެއެވެ. ޗައިނާގެ 19 ވަނަ ނޭޝަނަލް ކޮންގްރެސް އޮންނަ ދުވަހަށް މިބިޔަ މަސައްކަތުގެ ތަނބުތަކުގެ ހުޅި ޖެހުން ނިންމައިލެވުން އެއީ އެ ކޮންގްރެސްއަށް މަސައްކަތު ކޮންޓްރެކްޓް ދިން ހަދިޔާއެއް ކަމުގައި އެމީހުން ގަބޫލު ކުރެއެވެ.

ރީއިންފޯސްޑްކޮންކްރީޓުގެ މަސައްކަތަށް ކަނޑުގެ އޮޔާއި ވައި ގަދަކަމުން ގޮންޖެހުމަކަށް ވެގެން ދިޔައެވެ. ނަމަވެސް މައިތަނބުތަކުގެ ކެޕިން ކަނޑައަޅާ މުއްދަތަށް ވުރެ 22 ދުވަސް ކުރިން ނިންމައިލިއެވެ. ގަދަ ހޫނުގައި ކަނޑުމަތީގައި މަސައްކަތް ކުރާ ކޮންމެ މީހަކަށް ދުވާލަކަށް 5 ލީޓަރުގެ ބޯފެން ބޭނުން ވިއެވެ. ބްރިޖްގެ މަސައްކަތަށް މާލެއިން ހުޅުމާލެއަށް ކަނޑު މަގުން ދާ މީހުންގެއަތުގައި 5 ލީޓަރުގެ ފެން ފުޅިއެއް އޮއްވާ ފޮނުއެވެ.

ޗައިނާގެ ފުދުންތެރިކަން
މަސައްކަތުގެ ހަރުވިކަން

ބްރިޖުގެ މަސައްކަތުގައި ޗައިނާގެ ޗައިނާ ކޮމިއުނިކޭޝަންސް އެންޑް ކޮންސްޓްރަކްޝަންގެ ކޮމްޕެނީ (ސީ.ސީ.ސީ.ސީ.) ކުންފުންޏަށް ރާއްޖޭގައި ކުރުވުނު މަސައްކަތަކީ، ވަރަށް ގޮންޖެހުން ބޮޑު ތަފާތު ތަޖުރިބާއެއް ކަމުގައި ވެގެން ދިޔައެވެ. އާދައިގެ ކުރުމަތާއި ޖުރުބަދަރަތަކާއި ވާދީތަކުގައި އަދި ބްރިޖު ރާއްޖޭގައި މިއުޅި ބްރިޖު ތަފާތު ފަހި ދަތުރެއް އޮއްދުވާ ފުންކަނޑު ހިމެނޭތީއެވެ. އެހެން ތަންތާ އަދި ބްރިޖަށް ވުރެ ގޮތްގޮތުގައި ތަނބުޖަހާން ޖެހުނީ ފެށު ފުން ކަނޑުގެ އިތުރުން ހުޅުލޭ އެއަރޕޯޓުގެ ރަންވޭއާއި ބްރިޖު ގާތް ވާތީއެވެ. އަދި އުފުލުންތަކާއި ތިރިކުރުންތަކުގައި ބަހައްޓަން ޖެހޭ މިންތަކަށް ވަރަށް ބޮޑަށް ބަލާންޖެހުނުންނެވެ.

"މިއީ ބޮޑު ބޮޑު، ގޮންޖެހުންތަކާއި ކުރިމަތިލާން ޖެހުނު މަސައްކަތެއް އަދި ކޮންސްޓްރަކްޝަން މަސައްކަތަށް ބަލާއިރު 33 މަސްދުވަހީ ވަރަށް ކުރު މުއްދަތެއް"

ބްރިޖުގެ ޗީފް އިންޖިނިއަރު ޗެން ޒުހަން ބުންޏެވެ.

"ތެއްޓިން ކަމުގެ ހުނަރު ބަލާއިރު ވަރަށް ހުނު ގަދަކަން މަސައްކަތް ކުރާން ޖެހުނީ މިއީ ބޮޑު މަސައްކަތެއް". އަދިވެސް އޭނާ ބުންޏެވެ. "މިއީ ހާސިލު ކުރުވުނު ވަރަށް ތަފާތު ތަޖުރިބާއެއް. 21 ވަނަ ގަރުނުގެ ސިލްކް ރޯޑުން ހާސިލު ކުރުވުނު ވަރަށް މުހިންމު ބައެއް."

"އާންމުކޮށް އަހަރުވެސް އަޑި ބްރިޖުތަކުގައި ތަނބު ޖަހަނީ 600 ނުވަތަ 700 މީޓަރުން، ނަމަވެސް މީތަނގައި 60 މީޓަރުން 100 މީޓަރުން 140 މީޓަރުން އަދި 180 މީޓަރުން ތަނބުޖަހާން ޖެހުނު. ފުއިން ބްރިޖުގައި ހުރި 760 މީޓަރު ދުންހުރި ބައިތަކާ އެކު 1200 މީޓަރު" ސިނިއަރ އިންޖިނިއަރ އަދި ފޯރމަރ ޕްރޮފެސަރ ޒޫ ޖެންލިން ބުންޏެވެ.

ގުދުރަތީ ގޮތުން ބޮޑެގެއްލުމެއް ނުލިބި އޭގެ ޗޭތުގައި 100 އަހަރު މި ބްރިޖު އޮންނާނެ ކަމުގެ ޔަގީންކަން

ދުރު މުސްތަޤްބަލްގެ ވިސްނުމެއްކަން ދޭހަވާ ގޮތަށް ކުރެހުމެއް ޖެއްސުމުކަންފަދައި ފެށިއެވެ. އުސްކުރުން މިފްޓޯގެ 23 ވަނަ ބަޑުޖާގެ ތިރީގައި އުފެދިއެވެ. ކުރީން ބަޔާން ކުރި ފަހަރުން، މިއީ ރައީސް މައުމޫން ދައުރުގައި ފެށް ނުނިކުމާ ރިޕޯޓްއަގައި، ގޮތުގައި މާލޭ ސަރަޙައްދުގެ ތަރައްޤީގެ ދުރު މުސްތަޤްބަލްގެ ތަސްވީރެއް ކުރެހުނެވެ.

މާލޭގެ ދުވަސް ފާހަގަކުރެވޭ ބަޖެޓުގެ ހުޅަނގު ދުވަސްފަށަކުރުމުން 6 ހުކުރުބަރަސް އަހަރު ފުރި ބަޖެ ބިލްއް ވިލިނގިލީގާ ދިމާވާ ގޮތަށް އުރަފާނާ ހަމައަށް ހިއްކައި ތަރިކާފައި ފެށިއެވެ. މި ފޮތަށް މައުލޫމާތު ހޯދުމަށް، މާލޭގައި ހުޅުމާލެއާ އެއްބަސްވެއަށް ކުރި ޗައިނާބާޒަރުގައި، އެކަނޑު ދިސް މުވައްޖަފާ، ކުރީން ބަޔާންކުރި ރަށްޓައް ގުޅުމަށް ބިރިޖު އެޅުމަށް ޝަރުކާތްތަކަށް ފާހަގަކުރަ ފޯރާގައި ފެށިއެވެ. ސިނަމާލޭ ބްރިޖުގެ މަސަރއްކަތް އެކު ހަވާލުވުމުން ހުރިހާ ފަޅުވި ޖަރު މުހައްމަދު މުއިއްޒު މިފޮތަށް މައުލޫމާތު ދެއްވީމުން ވިދާޅުވުމަށް ތިލަފުށްޓާ ހަމައަށް މާލެ ގޮތަށް ގުޅުވާލުމުގެ ކަމަށް ހަމަޖެހިގެން ރިސާލަތް ހަދައިފައި ކަމަށެވެ. ގުޅުވާލަން ގަސްތުކުރިވިފައިވާ ކޮޅުވާ އާއި ބްރިޖާއި މަގު ފުޅާކުރަނީ ކަމަށެވެ. ކޮޅުވާ އަޅާ ތިލަ ރިސާލާގައި ތިރީން އުޖަލުދުވަހަށް ދަތުރު ނުކުރެވޭ ގޮތަށް ހަދާ ފާލަމެވެ. މުޅި ރަސްމީގެ ޖުމްލަ ދިގުމިނަކީ 6.7 ކިލޯމީޓަރު ކަމަށާއި ބްރިޖު އަޅާނީ 2.04 ކިލޯމީޓަރަށް ކަމަށާއި ދެ ރާނާއި ހަތަރު ދާނާއި ތަކާތު ފަރުމާތަކަށް އަޅާ ރިސާބުކުރުމައި ވާނީ ކަމަށެވެ.

2018 ވަނަ އަހަރު އަހާ ސަރުކާރު ދައުލަތް ހިންގުމާ ހަވާލުވުމާ، އެ ޚިދުމަތް ބަޔާނަތަކަށް ހަމަޖެ ކަމަށް އަހާ ސަރުކާރުގެ ފަރާތުން ބޭނުމިއް ވެއެވެ. އަދި މިކަމަށް އިތުރު އަވަސްކަމެއް ގެންވާށޭ ސަރަބޮތަކެއް ދެދުވެރިވެފައި ވެއެވެ. އެއީ މާލޭގެ ގިނަ ގެދަރުތަކެއް ދިރިހުރިއަށް ބިނާކުރަމުން ދިއުމާއި އާބާދީ އިތުރުވަމުން ދިއުމާއި


ރައީސް ޔާމީން އާއި ޗައިނާގެ މަންދޫބު ޝިޔާއޮޒާ ރަސްމިއްޔާތު ބްރިޖް ހުޅުވައިދެއްވަނީ


ބްރިޖް ހުޅުވުމުމަށް ފަހު ބާއްވުނު ހަވާއިރުވުމުގެ ބަރަކާތްތައް

ރައީސުލްޖުމްހޫރިއްޔާ އަބްދުﷲ ޔާމީން އަބްދުލްޤައްޔޫމާއި ޗައިނާގެ ރައީސްގެ ހާއްސަ މަންދޫބު، ޗައިނާ އިންޓަރނޭޝަނަލް ކޮމިއުނިކޭޝަންގެ ޗެއަރމަން ޝިޔާއޮޒާ އެވެ.

ބްރިޖާދު ދިވެހިރައްޔިތުން ކުރަމުން ދައި އުންމީދާއި ޚިޔާލާއި ފިކުރުގައި ބަޔާ ކުރާ ޖެހުނީ އެވެ. މިއީ ސިން ކަރާއި ދިވެހިރާއްޖޭގެ ޖަމާނީ ގުޅުން ދަމަހަށްޓައިދޭނެ ވަރުގަދަ ބިނާއެކެވެ. އާންމުންނަށް ބްރިޖް ހުޅުވައިދިނީ 2018 ވަނަ އަހަރުގެ ސެޕްޓެންބަރު 7 ވަނަ ދުވަހު ހަވީރު ހަތަރެއް ޖެހިއިރުއެވެ.

ސިނަމާލޭ ބްރިޖު ހުޅުވުމުގެ ކުރިން، ހުޅުމާލެއަށް ކާނުޖެހަން ދަތުރުކުރަމުން ދިޔަ ދިމާ މިހުން އެއްގަމު މަގުން ދަތުރުކުރާނެ ކުރިއެވެ. ސަރުކާރުގެ ކާރާއި ބަސްގެއެވެ. އަދި މުދަލު އުޅަނދާ ފެރީތަކެއް ވެސް ދަތުރުކުރާން ފޮރިއެވެ. ކުރީން ކަނޑުގެ މަތިން ދަތުރުކުރާ ލޯންޗްތަކުގެ ބަދަލުގައި މިހާރު ދަތުރުކުރަނީ ކުރި ދިމާ މިހުން ފަސޭހަ ޖާގަތަކުގައި ދަތުރުކުރާން ފޮރިއެވެ. މި ދިމަތާއި ބަސްތަކުން ގަސްދުކުރި ހަވަ ބްރިޖަށް ހަމަ ބަސްތަކަށް ހުށަހެޅުނެވެ. ދަތުރު ފަތުރާއި ވިޔަފާރިއަށް ހިދުކާރަތުގެ އިންޖިނާބާއް ބްރިޖުން ގެންނުވިއެވެ.

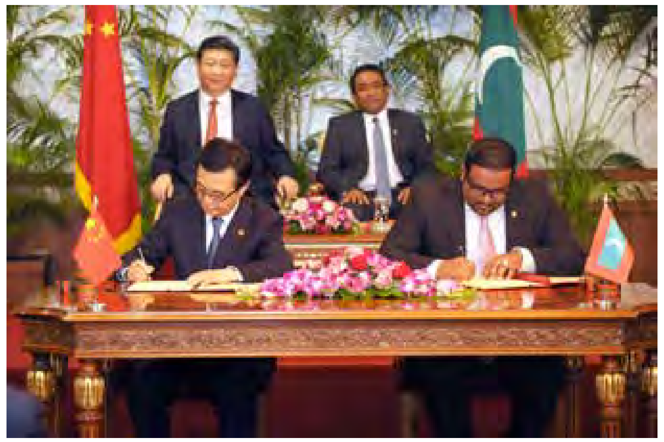
ސިނަމާލޭ ބްރިޖުގެ ކުރެހުންތަށް ޔާއްމުކުރިއިރު، އެއާއެކު މާލެއާއި ވިލިނގިލިއާއި ގުޅުވާއި ތިލަފުށި ގުޅުވާލަ


ރައީސް ޔާމީން އާ ޝީ ޖިންޕިން ބައްދަލުކުރެއްވުން

އޯގަސްޓް މަހު އޮތް ޗުއްޓީ އެކިވެރިކަސް މުބާރާތް ހުޅުވުމުގެ ރަސްމިއްޔާތުގައި ބައިވެރިވެ ވަޑައިގަތުމަށް ރައީސް ޔާމީން ޗައިނާއަށް ރަސްމީ ދަތުރުފުޅެއް ކުރެއްވިއެވެ. އެދަތުރުފުޅުގެ ހަފްތާގައި ޗައިނާގެ ރައީސް ޝީ ޖިންޕިންގް އާއި ރައީސް ޔާމީން ބައްދަލު ކުރެއްވިއެވެ. ރައީސް ޔާމީން އިސްވެރި ހާއްޖު ވަޑައިގަތުމަށް ފަހު މިޔާރަތްކާއި ވާހަކަފުޅުދައްކަވާފައިވާން ވިދާޅުވި، ބޮޑު އެދުމުގެ މަސްދަރު ހަމަލު ކުރުވުމާ ޗައިނާގެ ކުންފުނިތަކާ ކަމުދަލުވެއެވެ. ޗައިނާ ދަތުރުފުޅުގައި އެންމެ ބޮޑު އެކުވެރިއެއް ޗައިނާއަކީ ދިވެހި އާރިއްލް ބޮޑުވެރި ދައުލަތުތަކުން ވެސް ވިދާޅުވިއެވެ. އެ ދަތުރުފުޅަކީ މަސް ދުވަސް ވެސް ނުވަނީސް ސެޕްޓެމްބަރު 14 ގައި ޗައިނާގެ ރައީސް ޝީ ޖިންޕިންގ ރާއްޖެއަށް ކުރެއްވި ރަސްމީ ޒިޔާރަތުގައި ޗައިނާ މޯލްޑިވްސް ފްރެންޑްޝިޕް ބްރިޖްގެ ނަމުގައި މާލެއާއި ހުޅުމާލެ ގުޅުވާ އަގާ ބްރިޖުގެ އެއްބަސްވުމުގައި ދެ ގައުމުން ސޮއިކުރެއްވިއެވެ. އެއި ދަތުރުފުޅުގެ ދުވަސް ދުވަސްކުރުމުގައިވާ ސެޕްޓެމްބަރު 15 ވަނަ ދުވަހުއެވެ. ކަނޑައި އެއްގަމުގެ ދިރާސާތައް ކުރުމަށް ރާއްޖޭގައި ޗައިނާގެ ކޮންސްޓްރަކްޝަން ޕަވަރޗައިނާ ދިރާސާގެ މަސައްކަތް ފެށި 14 އޮކްޓޯބަރު 2014 ގައެވެ. މި ދިރާސާއަށް 10 ވަރަކަށް މަސް ހޭދަވިއެވެ.

ބްރިޖުގެ ބިޑް ހާމަކުރުމުގެ މަސައްކަތް ކުރުމަށް ހުވަފި ޗައިނާގެ ކޮންޓްރެކްޓަރ ކަމުގައިވާ ސީ.ސީ.ސީ.ސީ އެވެ. އެ ކޮންޓްރެކްޓް ދިނީ ދޭގޮ ހިސާބުތަކުގައި ބްރިޖް އެޅުމާއި އިމާރާތް ކުރުމުގައި ހާމިލް މަސައްކަތެއް ކުރުވަގާ ކޮންޓްރެކްޓެވެ.

ޒާތުގައި ފިނޮށިގައި ކުރި ތިރި ބްރިޖުގެ އަމަލީ މަސައްކަތް ފެށިގެން ދިއައީ 24 ޑިސެންބަރު 2015 ގައެވެ. މި މަސައްކަތަށް ޗައިނާ ސަރުކާރުން ހިލޭ އެހީގެ ގޮތުގައި 116 މިލިއަން ޑޮލަރު ދީފައިވާނެއެވެ. އަދި ލޯނުގެ



(1) ރައީސް ޔާމީން ޗައިނާއަށް ކުރެއްވި ދަތުރުފުޅުން މީޑިއާ ވާހަކަދެއްކެވުމުގެ ފުރުސަތުކުރުން. (2) ބްރިޖް އެގްރީމަންޓްގައި ސޮއިކުރުން.

ގޮތުގައި އިތުރަށް 72 މިލިއަން ޑޮލަރު ދޫން ނިންމިއެވެ. ދިވެހި ސަރުކާރުގެ ބައިތިޖާލުން 12 މިލިއަން ޑޮލަރު ހޭދަ ކުރުމަށް ކަނޑައެޅުނެވެ. ޖުމްލަ 200 މިލިއަން ޑޮލަރ މިމަޝްރޫއަށް ހޭދަވާނެކަމަށް ކަނޑައެޅުނެވެ.

ބްރިޖުގެ ހުވަފެން ޙަޤީޤަތަކަށް ވެދާނާތަން ދިވެހިންނަށް ފެންނާން ފެށީ އަހަރީ މަސައްކަތް ފުރިހަމަކޮށް ވަރަށް އަވަހަށެވެ. ބްރިޖުއާއި ޒިޔާރަތް ފިނޮށިގައި ކުރި ތިރި ބްރިޖުގެ މަސައްކަތް ނިމި ރަސްމީކޮށް ހުޅުވީ، 2018 އޮގަސްޓް 30 ވީ ބުރާސްފަތި ދުވަހުގެ ހެނދުނު ގަޑީގައި އޮތް ރަސްމިއްޔާތެއްގައެވެ.

“ސިނަމާލެ ބްރިޖް” (ނުވަތަ ޗައިނާ މޯލްޑިވްސް ފްރެންޑްޝިޕް ބްރިޖް) ހުޅުވައިދެއްވީ،

ރައީސް މުޙައްމަދު ވަޙީދު

ބޮއްޑުވި ވަޙީދުންގެ މަޖިލީހުން ނިންމެވި މާލެއާއި ހުޅުލޭ ބްރިޖަކުން ގެނައިދެވުނެވެ. އެ މަޖިލީހުގައި މަސްވަރާ ކުރެވުނީ 70 ނުވަތަ 100 މިލިއަން ޑޮލަރުން ބްރިޖެއް އެޅިދާނެކަމަށެވެ. އެ ދުވަހު ރައީސް ޙަސީދުން ހާމަ ކުރެއްވި ހަބަރުގައި ވަނީ، 1946 ވަނަ އަހަރުން ފެށިގެން އެ ފަދަ މަސައްކަތް ކުރާ ކުންފުންޏަކުން ހިދު ދިރާސާއެއްގައި ވާގޮތުން އެއަށް ބްރިޖް އެޅިދާނެކަމަށެވެ. މި ޒާތުގެ ވަނީ ހޮންގްކޮންގްގެ އޭ.ވީ، އަރުޕް އަދި ޕާޓްނަރސް ލިއްވައި ސަރުކާރުން 31 މޭ 2011 ގައި ހުށަހެޅި ދިރާސާއެއްގައެވެ. އެމް.ޑީ.ޕީ ސަރުކާރުގެ ޕްރޮގްރާމް މެނިފެސްޓޯގައި ކުރެއްވި އަހުދު ހާސިލް ވިދާޅުވި ބްރިޖް އެއްކޮށް ބެހޭ މަސައްކަތްތައް ކުރެއްވި ކުރުގައެވެ. ނަމަވެސް އެމް.ޑީ.ޕީ ސަރުކާރުން ބްރިޖުގެ އަމަލީ މަސައްކަތް ކުރުމަށް އެއްވެސް ކުންފުންޏަކާ އަދި އެއްވެސް ފައިސާ ހޯދައިވެސް ސަރުކާރުން ޢިއުލާނެއް ނުކުރެއެވެ.

ރައީސް ނަޝީދު 2012 ފެބްރުއަރީ 7 ވަނަ ދުވަހު އިސްތިޢުފާ ދެއްވުމަށް ފަހު، ރައީސް ޑޮކްޓަރ މުޙައްމަދު ވަޙީދު ޙަސަން މާނިކުގެ 21 މަސް ދުވަހުގެ ސަރުކާރުގައި މިކަމާ ބެހޭ ހަބަރުތަކެއް އާންމުންނާ ހަމައަކަށް ނުވާ ފޮނުވައެއް ނުވެއެވެ. ނަމަވެސް މިހާރު އަޅާފައިވާ ސިނަމާލެ ބްރިޖް ހުޅުވި ދުވަހު ޑޮކްޓަރ ވަޙީދު ކުރައްވާ ޓްވީޓުގައި ވަޙީދުގެ ވެރިކަމުގައި ފަސް ބްރިޖް އެޅުމާ ބެހޭ ގޮތުން ޗައިނާ ސަރުކާރާ ވާހަކަ ދެއްކެވި ކަމަށް ވިދާޅުވެފައި ވެއެވެ.

ރައީސް ޔާމީން 2013 ވަނަ އަހަރު ސަރުކާރު ހިންގެވުމާ ހަވާލުވެ ވަޑައިގަތުމެވެ. އާ ސަރުކާރަށް ސަރު ގޮތެން ފެށީ ބްރިޖުގެ ކޮންސެޕްޓް ހިލޭ ކުރަހައިދިނުމަށް ޝާހިދު ހުށަހެޅުއްވިއެވެ. އެ ހުށަހެޅުމަށް ދިވެހި ސަރުކާރުގެ އިސް ބައެއް މަސްއޫލުވެރިން ވަރަށް ގާތުން ބަލައިގަތުމަށް ޝާހިދު ވިދާޅުވިއެވެ. އެކަން އެގޮތަށް އޮތީ ޗައިނާއިން ފަހުން ބޭނުމުގެ ފަހުން ބްރިޖް އަޅުއްވަން ނިންމެވީ ނިންމުމުން، ޝާހިދު ފޮނުވަކަމަށްވެސް ވަރަށް ރަނގަޅު ނިންމުމެއްގެ ގޮތުގައެވެ.

ޕީ.ޕީ.އެމް ސަރުކާރުގެ ރައީސް، އަބްދުﷲ ޔާމީން އަބްދުލްޤައްޔޫމްގެ ވިޝަން ސްޓޭޓްމެންޓް އެންމެ އިސްކަމެއް ދެއްވި ކަމެއްގެ ގޮތުގައި ބްރިޖް ހިމެނުނެވެ. އެގޮތުން އެ ސަރުކާރުގެ ފުރަތަމަ 6 މަސް ދުވަހުގެ ތެރޭގައި މިމަސައްކަތް ކޮންމެހެން ފަށާފައި ހުރުމަށް އިޢުލާން ކުރެއްވިއެވެ. ދިވެހި ސަރުކާރުން 2014 ވަނަ އަހަރު ޖުލައި މަހު ބްރިޖް އަޅަން ސްޓަޑީ ފިޔާ ފީޒިބިލިޓީ އަޕްރައިސަލް ހުށަހެޅިއެވެ. އޭރު ގައުމުތަކުގެ 19 ކުންފުންޏަކުން ބްރިޖް އެޅުމަށް ޝައުގުވެރިކަން ފާޅުކުރި އިރު އޭގެ ތެރޭގައި ޗައިނާގެ 11 ކުންފުންޏެއް ހިމެނުނެވެ. ޗައިނާގައި 2014

ރައީސް އަބްދުﷲ ޔާމީން

ފަރާތުގެ ގޮނޑުދޮށް ތަރައްޤީ ކުރުމުގެ ހުވަފެނި ކުރުމުންތަކެއް 2008 ގެ ރިޔާސީ އިންތިޚާބު ގާތް ވަމުން އައި އިރު ދިޔައީ ފެންނަމުންނެވެ. އެއާ ގުޅޭ ކުރުމުގައި ފެށި ވާހަކަ އިރު ދެކުނު ކަނޑުގައި ބަރަށްބާރުވައި ހުއްޓެވެ. އެއީ ރައީސް މައުމޫނުގެ ރިޔާސީ އިންތިޚާބު ފަހުން ދައުރުގެ ދުވަސްކޮޅެއް ގެނަމުން ދިޔައިރުއެވެ.

"މިން ބޭ ޕްރޮޖެކްޓަކީ މުޖިން އެހެން އެއްބަސް. އެއީ އާރކިޓެކްޗަރ ބޯޓުގެ (ހާކާ އިންޑަސްޓްރީ ފަރާތުގައި ޖަޕާން މިހެން ހަދައިދިން ބޯޓު) އަޕްގްރޭޑް ވާރަސަނެއް." ކަމަށް ކުރިގެ ޓްރާންސްޕޯޓް މިނިސްޓަރ ޙަމްދޫން ޙަމީދު ވިދާޅުވިއެވެ.

މިން ބޭ ޕްރޮޖެކްޓަކީ ބޮޑުގެ އިންފްރާސްޓްރަކްޗަރ ހުރަހެއް ކުރެވުނުވެ. އޭގެ އަގު ވަރަށް ބޮޑުވެ. ޕްރޮޖެކްޓުގެ ޓްރެފިކުވެސް ހިފުނުއެވެ. މުޅި އެސްޓަރެއްޓު އާޓީ އެއާރުންގެ ބާރުމަތިން ނަގާގަނެވެ. ކުރުމުގެ ވިޔާ ފެސް އެއާރުން ގެނައެވެ.

"އެއީ މައުމޫނުގެ ނަމުން އިންތިޚާބުވި މީހުން ބޭ ކިޔުނު. އެއީ ސަރުކާރުގެ ވަކި ބޭނުން ތިބެ ހިމަނައިގެން އަދި ޕްރޮޖެކްޓުގެ ނަން. އެމީހުންގެ ބޭނުމަކީ ޕްރޮޖެކްޓު ވަކި ކުރުމުގެ ބާރު އަދި ބޮޑު ފެސް ކޮށްދޭން ދައްކައި ބޭނުމަށް. ބޭނުމެއްނެތި ހުރި ޖާގަހެއް ކުރު ފެނުމެވެ."

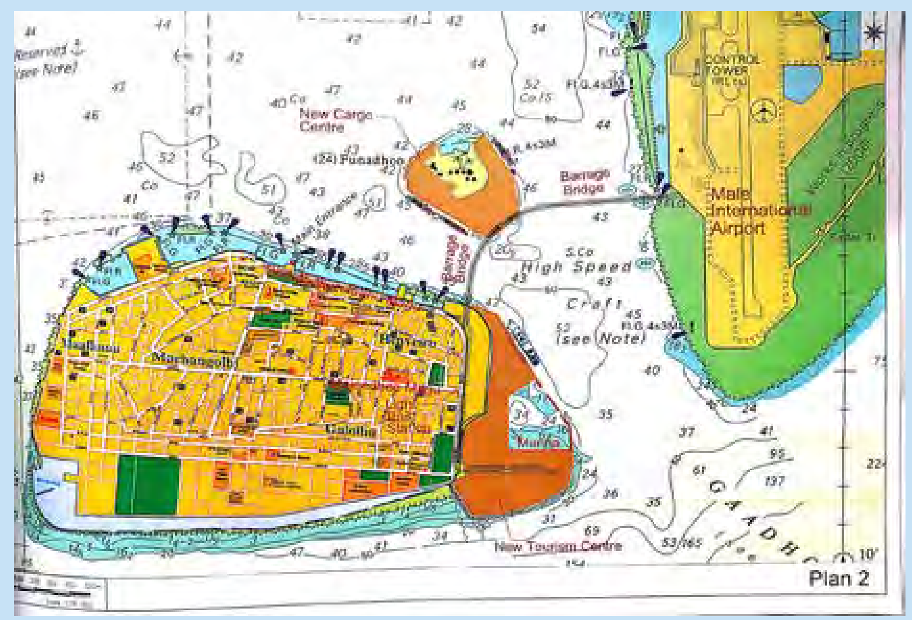
ބައެއްގެ ހުރަހެއްވެއެވެ." ހަމްދޫން ވިދާޅުވިއެވެ.

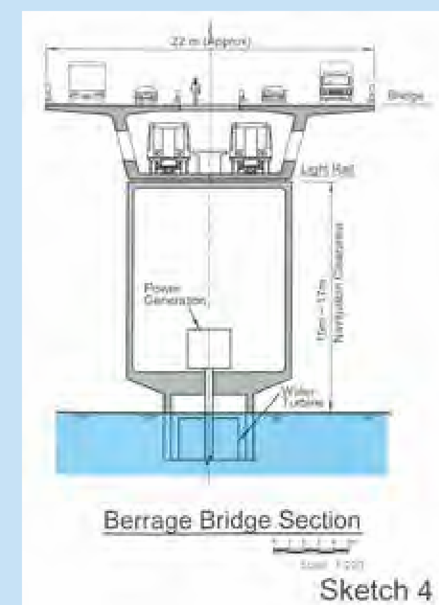
މައުމޫނުގެ ސަރުކާރަށް ފަހު އިންތިޚާބުވި އަލްޖީރީ ސަރުކާރުގެ ރިސް ބޫރުމުގެ ތެރޭގައި ފެސް ބްރިޖު އެޅުމުގެ މަސައްކަތެއް ކުރުވުނެވެ.

ރާއްޖޭގެ ފުރަބަގައިގެ ހިންގުމުގެ ދައިރާގައި މަޝްވަރާ އަދި ބޭނުމު މަޝްވަރާތައް ހިނގާވެ ބޮޑުވެއް ކަމުގައިވާ އަޙްމަދު ޝާހިދު ވިދާޅުވި ގޮތުގައި، ދުނިޔެއަށް މަޝްވަރާ ބޮޑުވެއް ކަމުގައިވާ ހުންކޮންގެ ސަރު ޗެއިން ލީ 2010 ވަނަ އަހަރު އޭނާގެ ދައުލަތަށް ރާއްޖެ ވަޑައިގެން،

ސަރު ޗެއިން ލީ ގެ ހުށަހެޅުމުގައި، ބްރިޖުގައި މިހުން ހިނގާ މަގު ވަނީ ފޮށިފަހަރަށް ދެފަރާތް ފާހަގަވެ. ތިލަފުށީގައި ވަނީ ވައިބްރޭޝަނުން ކިޔާ ބާވަތުގެ ދޮޅު ބޮޑު ދަތުރުކުރާ ދެ ބޭރުކޮށް. ސިޓީ ބްރިޖް އިންޖީނިއަރިން، މި ހިއްސާގެ ވަށްފަރާއިރުން، ބްރިޖުގައިވަނީ ހަމަނުޅު ޚާއްޞަ އެވެ. އޭގެ ތިލަފުށީ ބްރިޖުގެ މުޅި ބައި ކޮންކަ

ހިސާބުގައި ވަނީ، ކަނޑުން ދުވާ އޭރިން އިލެކްޓްރިކް ހަކަތަ އުފައްދާ ޖެނެރޭޓަރެވެ. ބްރިޖުގެ އަޑި، އުފައްދާ އިލެކްޓްރިކް ހަކަތަ ބޭނުންކުރާނީ ހަމަ ކުރިއަށް ގެންދާ ފަރުމާ. ސަރުކާރުގެ އިސް ފަރާތަށް މި ހުށަހެޅުން ހުށަހަޅާފައި ވެއެވެ.





އަމިއްލަ ދިރާސާތަކެއް ކުރެއްވުމަށް ފަހު ބްރިޖުގެ ކޮންސެޕްޓެއް ހުށަހެޅުއްވިއެވެ.

ސަރު ޗެއިން ލީ އަދި މިއަދު ދުނިޔޭގައި އަޅާފައިސް

ރައީސް ނަޝީދުގެ ދައުރުގައި، ހުޅުމާލޭގެ ކޮންފަރެންސް ދުވަސްތަކުގައި ބްރިޖުގެ ބަހާ ޕްރެޒެންޓޭޝަން ހަދާފައި ވެއެވެ. ދިރާސާގެ ނަތީޖާ ބޭނުންކޮށް ބްރިޖުގެ ފަރުމާތަކާއި އަންދާޒާ ޚަރަދުތަކާއި ގުޅޭ ދިރާސާތައް މިގައި ފަރާތްތަކުން ހުށަހެޅިއެވެ. ސިނާއާތް ބޯޓު ބްރިޖަކީ މިދިރާސާގައިވާ ހުށަހެޅުއް ނުންނެވެ.

އެންމެ ދިގު އެއް ބްރިޖުގެ ނަގާކިޔާގޮތް. އެއީ ހޮންކޮންގެ - ޗެރާއި - ލާކާއި ދެ ދިލުދު އަބާ ފަހިވާ 50 ކިލޯމީޓަރުގެ ބްރިޖެވެ. އާނާ ހުރަހެއްވީ ކަރަންޓް އުފައްދައިގެން ބްރިޖަށް ދާ ހަރަދު ދަތުރު ޖެއްސުމުގެ ހުރަހެއްގެކެވެ. އެއީ މިހާރުވެސް ބްރިޖު އަށާފައިވާ ސަރަހައްދުގައި ދަތުރުތަކުން ދަމާ އާއިވަރުން ކަރަންޓް އުފައްދައިގެންނެވެ. އަދި އެކަރަންޓް ސްޓޯރޭޖުއަކުން ވިއާގެތަތެވެ. ހުރަހެއްގެ އަގުވެސް 250 މިލިއަން ޑޮލަރު އަދާކުރަން އެންމެ ކުރީ ކަލަން ޗެއިން ލީ ބްރިޖުއިއްޔެވެ. އެ ހުރަސްކުން އާރުގެ ރައީސް މުހައްމަދު ނަޝީދަށް ހިއްސާ ކުރައްވަމުން ވެއެވެ.

އެމް.ޑީ.ޕީ ސަރުކާރުގައި ރަސްމީކޮށް ބްރިޖުގެ ވާހަކަ އާންމުންނާއި ހަމައަށް ދިޔަ ފެހިއެވަނީ 2011 ވަނަ އަހަރުގެ ޖެނުއަރީ 20 ވަނަ ދުވަހުއެވެ. އެ ދުވަހު

ވޯލްޑްބޭންކުގެ ގޮތުގައި ޕްރޮޕޯސަލް
މިނިސްޓްރީގައި މަސައްކަތް ކުރި
އެވެ. އަދި ރާއްޖޭގައި ކުރިން
މަސައްކަތް ކުރި ބޯޓު ހުންނަން
ދެވަނަ ފަހަރަށް ރާއްޖެ ގެނުވުނެވެ.
މި ބިމުން ކުރި މަސައްކަތުގައި
މުސްތަގުބަލުގައި ތަރައްޤީ ކުރާނީ
ކޮން ދަރަޖައަކަށް، ކޮން ހިސާބު
ތަކުއްރު ބަލައިހެދިއެވެ. އާގެތަރައިން
ހުޅުމާލެ އާއި ޓްރާންސްޕޯޓް އާރބަން
ރިޖަންގެ މާޒޫގެ އެކްސްޕެންޝަން
އެވެ.

ޖަޕާން ބިމުގެ އިސް މިހަރު
މިސްޓަރ އަބޭ އެވެ. ރިޕޯޓް
ތަޔާރު ކުރުމަށް ފަހު އެމީހުން
ބޭނި ދިރާސާކުރެވުނެވެ. ފުނަދޫ ކާރުން

އަޅައިދިނަމަ ބުރިޖުގެ ދަށުން
އުޅަނދުފަހަރު ދަތުރު ކުރާން
ޖެހެއެވެ. ދެން ސަވްބޯޑިންކާ
ކަމުގެ އަޑިން ދާން ބަލާއިރު ކުރި
ކުރި ބުރުޖަކުން އަޅުމުން ދާން ޖެހޭނީ
އުސާ ކަމުދާ ގޮތަކަށް ނުވެއެވެ.
ބުރިޖުގެ އުސްމިން ތަފްސީލު ފަރުމާއެއް
ދުނިޔޭ ކުރެހުމެއް ތައްޔާރުކުރި
ކޮބަލްޓަން ނިންމައިގެން ޕްރޮޕޯޒަލްގެ
މިނިސްޓްރީން ބޭންކަރު އިޢުލާން
ކުރިއެވެ. 100 މިލިއަން ޑޮލަރުގެ
އަގެއް ވެސް ހުށަހެޅުން ކަމަށް
ވެއެވެ. އެއީ އެދިވަސް ވަރަށް
ބަލާނަމަ ދައުލަތަށް ވަރަށް ބޮޑު
ބުރައަކަށް ވާނެ އަގެކެވެ.
"އެޕްރޮޕޯސަލް އެހައި ރިއަލިސްޓިކް

ނުވާތީ، ކަމުނުދިޔައީ. ޕްރޮޕޯސަލް
ވެސް ރަނގަޅެއް ނޫން." ހަމްދޫން
ހަމީދު ވިދާޅުވިއެވެ.

އިންޖީނާގެ ކުންފުންޏަކުން މި
މަސައްކަތަށް އަގު ހުށަހެޅި އިރު
އެމީހުން ތަފްސީލު ޑިޒައިނެއް
ހުށަހަޅާކަށް ނުޖެހެއެވެ. އެމީހުން
ލިޔުނީ ކޮންސެޕްޓެވެ. އެއީ މާލެއާއި
ހުޅުމާލެ ގުޅައިލާ ކޮންސެޕްޓެވެ.
އެމީހުން ތަޢާރުފުކުރި ކަރުދާހުގައި
އޮތީ ފުނަދޫ ނުހިމެނައެވެ. ފުނަދޫ
ނުލައި ހުރީ އެކަމުގެ ޝަރުތުތަކެއް
މާޖިނަލްވެފައެވެ.

ބުރިޖެއް އެޅުމުގެ މަސައްކަތް
2005 ވަނަ އަހަރު ޓްރާންސްޕޯޓް

މިނިސްޓްރީއާ ހަވާލު ކުރުމުންނެވެ.
ޓްރާންސްޕޯޓް މިނިސްޓަރުގެ
ބެއްލެވުމުގެ ދަށުން އެއަރޕޯޓް
ކުންފުނި ހިންގާނީ އެއަރޕޯޓް
ކުންފުނީގެ ފަރާތުން ބޮޑުވެރި
އެމުގަން ޝައުޤުވެރިވާ ބައެކު
ލިބިގެ ބެއްލެވުމަން ބައިނަލްއަޤްވާމީ
ބޭންގަރަން ހުށަހެޅުމުން 22
ފަރާތަކުން ޝައުޤުވެރިކަން
ފާޅުކޮށްފައި ވާކަން އެ އަހަރު
ޖޫން މަހު އެ މިނިސްޓްރީން
ހާމަކުރައްވައެވެ. އަދި އެކަމަށް
ބޭނުންވާ ބިލަން ކުރުމަށްޓަކައި
ކޮންސަލްޓެންޓް ފާރަތާއި އިންޖިނިއަރިން
ޑިޒައިން ތައްޔާރު ކުރުމުގެ
މަސައްކަތް ކުރުމަށް ބޯޑުގެ
ނޮމިނޭޝަންގައި އިއުލާން ކުރިއެވެ.
ހޯދުން ފަރާތް ކަމުގައިވާ، އިންޖީނާގެ
އެސް.ޕީ.އައި ކޮޕަރޭޝަނާއި

އެ މަސައްކަތް ހަވާލުކުރައްވައެވެ. އެ
ގޮތަށް އެ މަސައްކަތް ހަވާލުކުރީ
ބޮރިޖެއް އަޅައި ހިންގުމުގެ
ޝައުޤުވެރިކަން ދިން ކުންފުނިތަކުން
ފުރުޞަތު ދެއްވާފައެވެ.

ތަފްސީލު ކުރެހުން ތަޔާރު ފީޒިބިލިޓީ
ސްޓަޑީ ހަދައި ބޮރިޖު އެޅުމަން
ހަވާލުވާ ފަރާތުން ކުރުމުގައި ވަނީ
ކަނޑައަޅާފައެވެ. އިންޖީނާގެ އެސް.
ޕީ.އައި ކޮޕަރޭޝަންގެ
ފަރާތުން ހަމަސް ދުވަހުގެ ތެރޭގައި
ރިޕޯޓް ހުށަހަޅާން ޖެހެއެވެ. "މާލެ
އިންޓަނޭޝަނަލް އެއަރޕޯޓް ކުންފުނީގެ
އެމަސައްކަތް ހަވާލު ކުރެއްވީ
ދައުލަތުން ބަޖެޓް ކުރެވިފައިނުވާ
ކަމަކަށްވާތީ އެކަމުގައި ހަރަދު
ކުރާ ފައިސާ ފަރާތުން އެއަރޕޯޓް
ކުންފުންޏަށް ދައްކާ ގޮތަށް" ކަމަށް

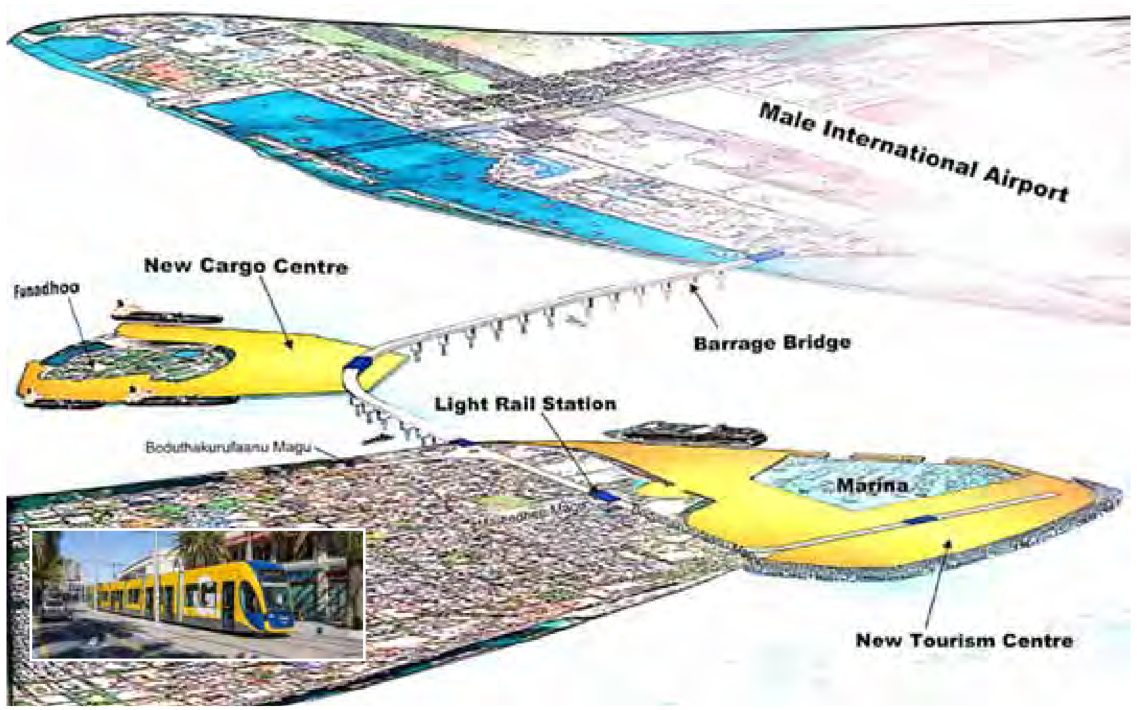
އޮތީ އެކުންފުނީގައި މިމަސްއޫލިއްޔަތުގެ
މަސައްކަތާއި ހަވާލުވެ ހުންނަ
މުޙައްމަދު ޝަރީފު މަޙްމޫދު
ވިދާޅުވިއެވެ. އަދި އެކަން
އެގޮތަށް ކުރީ ކުންފުންޏެއް ވީމާ
އަވަހަށް ކަންކުރަން ފަސޭހަވާނެއް
ހުންނާނީ ކަމަށް ވެސް އޭނާ
ވިދާޅުވިއެވެ.

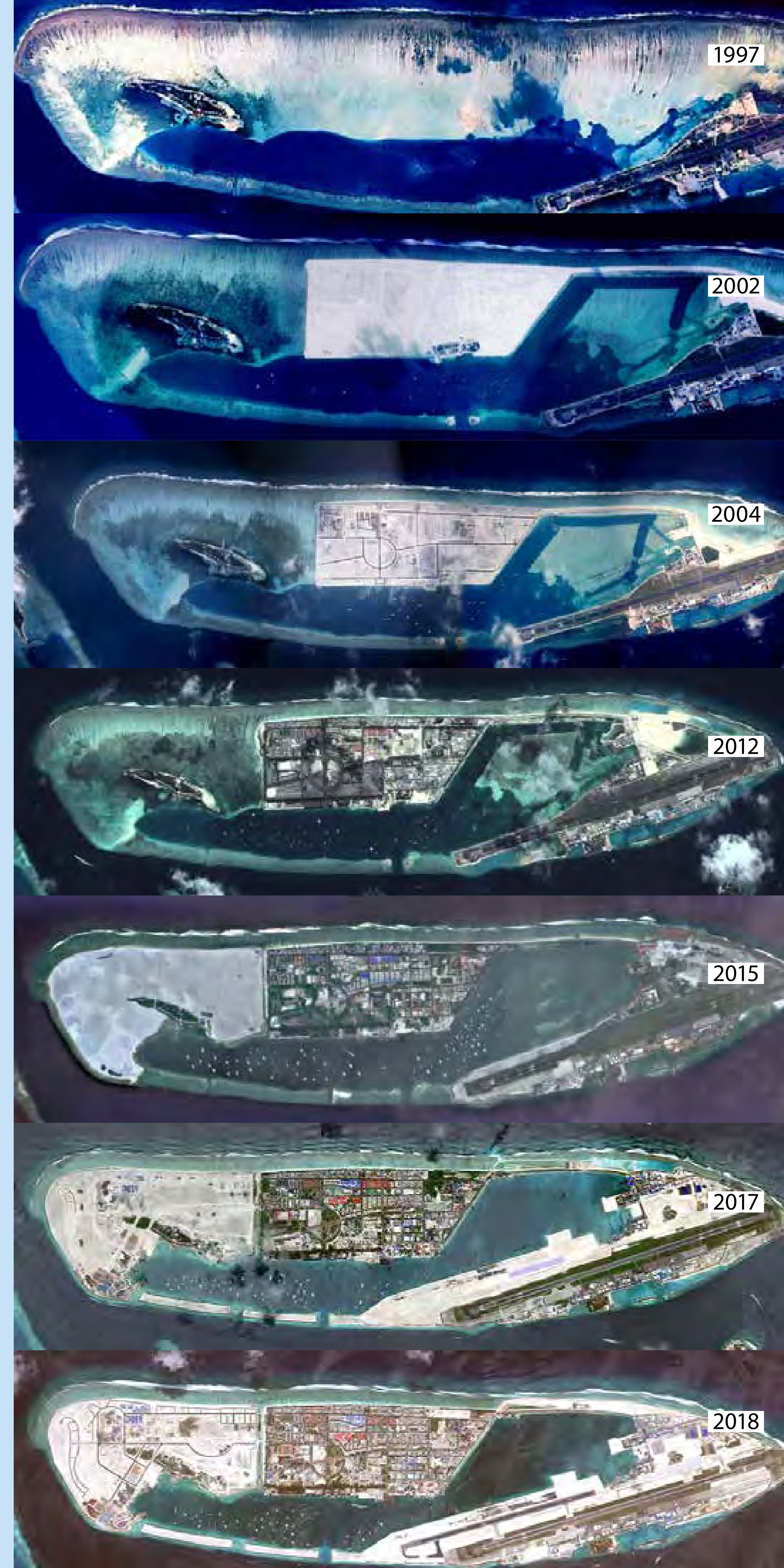
ފަހުން އެކަމާ ބެހޭ ގޮތުން އިތުރު
މައުލޫމާތެއް އެ މިނިސްޓްރީން
ހާމައެއް ނުކުރައްވައެވެ.

2007 ވަނަ އަހަރު ނިމުން
އިރުވެސް ބޮރިޖު އެޅުމުގެ
މަސައްކަތާ ބެހޭ މައުލޫމާތެއް އާންމު
ވެފައެއް ނުވެއެވެ.

ޗުން ބޭ ގެ ނަމުން މާލޭގެ އިރުމަތީ


ބުރިޖު އެޅުމަށް
މަޝްވަރާ
ކުންފުންޏެއްގެ
ވެރިއެއް ކަމަށްވާ
ސަރ ގޯރޑަން
ވޫ، ހުޅުމާލެ އާއި
ފުނަދޫ އާއި މާލެ
ގުޅާލާ ބުރިޖެއްގެ
ތަޞައްވުރެއް
ސަރުކާރަށް
ހުށަހެޅިއެވެ.





ނުނުވެ. މާލޭގެ ތޮއްޖެހުން ކުޅެކުރަން
ކުރުވުން އެންމެ ބޮޑު ކަމަކީ ބިން
ބޮޑުކުރުންކަމުގައި ވާތީ ހުޅުލޭ ފަޅު
ހިއްކައިރު މާލޭގައި ހުރި ހިދުމަތްތަކެއް
ތަކެއްރު ނުވާނީ ބެރިޖެހުން
ގާތްލިގެން ކަމަށް އެކޮޅުބީގައި
ވަނީ މަޝްވަރާކުރެވިފައެވެ.

ބޮޑުގެ ތަފާތު އިންޖިނިއަރުންނާއި
ޖީއޮނިކަލް މިހުންގެ ހިސާބުގައިވެސް
ބެރިޖެއް އެދިދާންކަމަށް ބެނަމުން
ދިޔަކަމަށް އެމަސައްކަތް ގާތުން
ދެކެވަޖެއިގަތް ބޮޑުގެއްކަމުގައިވާ
ޕްލޭނިންގ މިނިސްޓްރީ އާއި
ޕްލޭނިންގ ޑިޕާޓްމަންޓްގައި
މަސައްކަތް ކުރެއްވި މުހައްމަދު
ހުނައިފު ވެސް ވިދާޅުވިއެވެ.
ނަމަވެސް އާދު ބެރިޖާބަށް އަމަލީ
ދިރާސާތަކެއް ނުކުރެވިއެވެ.

ބެރިޖު އެޅުމަށް އާދު ދެކޮޅަށްގެ
ކޮންސްޓްރަކްޝަން ތައްޔާރު ކުރުވުނެވެ.
އެއް ގޮތަކީ ފުނަދޫ ކާޒުން
ގެއަދިލުމެވެ. ދެވަނަ ގޮތަކީ މާލޭގެ
އިރު ދޮށުން ކަނޑުން ހުޅުލޭގެ
ހުޅަނގު ދޮށުންކަނޑަށް ގެއަދިލުމެވެ.
އެގޮތުން ހުޅުމާލޭގެ މަގުތައްވެސް
ފަރުމާ ކުރުވުނީ އެ ވިސްނުމުގައެވެ.
މި ކަމުގައި ދެ އަހަރު ހާދަވިއަށް
ފައިނަލް ކޮންސްޓްރަކްޝަގައި ޑްރާބަރ

އެކި އަހަރުތަކުގައި ހުޅުމާލެއަށް އައިސްފައިވާ ބަދަލުތައް

މާލޭ ހުރިގޮތް ދާއިރު ދިއްލުންބާ
ހަމައަށް ގުޅައިލުމުގެ ލިޔުއްވުންތައް
ތައްޔާރު ކުރުވުނު ކަމަށް ބަހުމުރުން
ބަދިތާއި އިބްރާހިމް ރަޝީދު ވެސް
ވިދާޅުވިއެވެ. އޭނާ މާލޭ ހަރުސީންގެ
އަންނެ އާރބަން ޑިވެލޮޕްމަންޓް
ޕްލޭނު ނަމުގައި ތައްޔާރު ކުރުވުނު
ރިޕޯޓެކެވެ.

ޖޭ.އައި.ސީ.އޭ ގެ އެހީގައި 1993
އަހަރުން ފެށިގެން ޗަޔާނާގެ
ސްޓަޑީއަކީ ދެ އިންޖިނިއަރުން

މަތީގައި: ހުޅުމާލޭގެ ތަޞައްވުރު އަންގައިދޭ ކުރެހުމެއް. ތިރީގައި: ހުޅުމާލޭގެ މާސްޓަރޕްލޭން.

(1) މާލެއަށްފެނޭ ހުޅުމާލެ - މީހުން އާބާދުކުރުމަށްފަހު. (2) މާލޭ ހުޅަނގުފަރާތު ބިންހިއްކުމުގެ މަސައްކަތު ރައީސް މައުމޫން ފެއްޓެވީ.

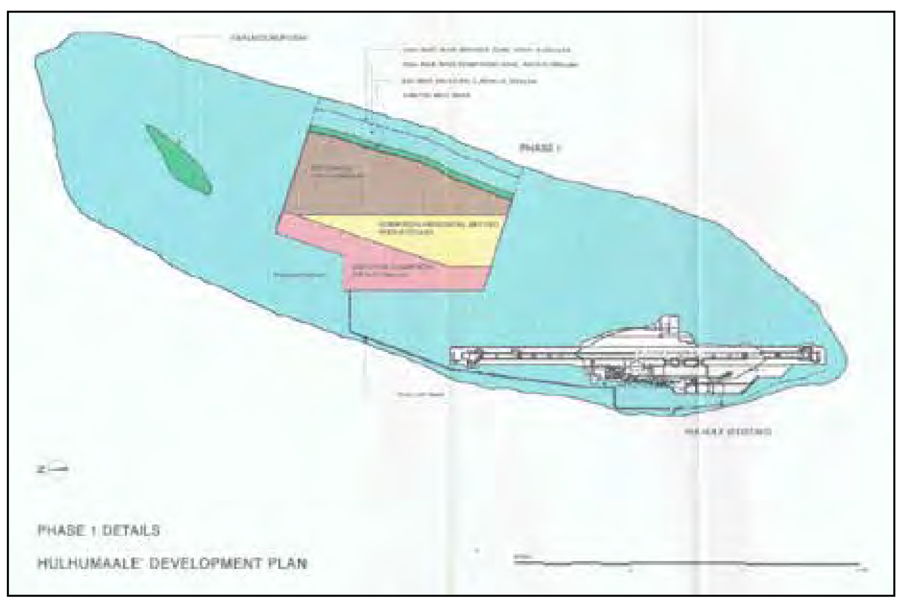
ކަމުގައިވާ މިސްޓަރ ކޯރިސް ރޮޖެވޯގެ ކުރެހުމުގައި ވެސް މިހާރު ހުޅުމާލޭގައި އޮތް ބޭޒުމަގުގެ އިރުމަތީ ޓަވަރު އަތިރިމަތީ އޮވަނީ މާލެއާއި ބޯޓުކަނޑުން ގެއްލިފައެވެ. ޒަވު ހިޔާލުކުރެވުނު ހުވަފެނުން އަނބުރާ ނުކުމެއުޅެއެވެ. އެހެ ހަނދާ ހިލާފަށް ސިޓީވެސް ގެއްލިގެން އުޅެއެވެ. އެއީ ހަރުދަނާ ހިލޭ ނިންމުމެއް ކަމަށް ވާނެއެވެ.

ހުޅުމާލޭ ހިއްކުމުގެ މަސައްކަތް 1997 ވަނަ އަހަރު އެވެ. އެއީ ފަރަށް އާދައިގެ ގޮތަކަށް ފުރުން މަސްއޫލުވެ. ނަމަވެސް ފުރުން ބޮޑުގެ ކުންފުނިކާ ހަވާލު ކޮށްގެން ހިއްކަން ފެށިއެވެ. މިފަހަރުގެ މަސައްކަތުގެ

ތަފާތު ކަމަކީ ފްލެޓްތަށް ހައުސިންގ ޔުނިޓުތައް ކަމަކަށް ވުމެވެ. ބިންވެސް ޖެހޭނީ ބިޔަ އުސްފުން ގަންނާށެވެ. ހުޅުމާލެއިން ގޯތި ދިނީ ހިފެއެވެ. ހުޅުމާލެއަށް، މާލޭ ހިލާފަށް، ބައިސިކަލްއާއި ފައިމަގުތަކާއި މަގުތަކާއި ޢާންމު ޕާކުތަކާއި ބަނދަރާ މަސްތަކާ ދުރުގައި ހުންނާނެ ގޮތަށް ކުރެހުން ތަރުތީބު ކުރެވިފައެވެ.

ގޮތުގެ ފަހަތުން އެކަމަށް ޑިޒައިނަރުން ކުރާ ސްޓަޑީތަކުގެ ތެރެއިން 1993 ގައި އުފެއްދުނު ކޮމްޕެނީ ބަޔާން ހުޅުމާލޭ ހުވަފެނުގެ ކުރަހަމުން އަތުން ދިރާސާ ކުރުމަށް ނިންމިއެވެ. ކޮމްޕެނީ އަ ހުވަފެން ފުރިހަމަ ކަމަށް ބޭސްލައިން ހުޅުމާލެ ވަޒަން ރިޕޯޓާއި ވައިގެބަނދަރުން ބަނޑުނާ ބިން ހިއްކަން ނިންމިއެވެ.

އޭޕްލިކޭޝަން ގޮތުގެ ދެން ބަޔަކަށް ކަމުގެއިވާ ކުރިގެ ފްލެޓްތަކުގެ މިނިސްޓަރ ރަޝީދު ވިޔަނުވީ ގެއްލި މާލޭ މަސްއޫލުގެ ޑަނގުން ހުޅުމާލޭ ހިއްކަން ނިންމިއެވެ. ދަރު މާލެ އެއި ހުޅުމާލެ ގެވެއްލުމަށް ބޮޑު އަޅުގަނޑު މަސްވަރާކުރުމަށް ކުރިއަށް ދެކެއްވުމެވެ. އެ ދިސްކަލްޝަނަށް ފަހު ގެބާޗަރ ކުރިއަށް ކުރިއަށް ކުރަމުން ހުޅުމާލެ ހުޅުމާލެ. އެ ދިސްކަލްޝަނަށް ބަދަލުގެ ކުރިއަށް ތިޔާރީ އާބާދީއަށް އެންމެން ބަރުތުބަކާއި އަސާސީ ހިދުމަތްތަކަށް ދޭ ބަޔަކަށް ނާއިބު ހުޅުމާއި މިކަމަށް އެބައަށް ކަމުގެ ކަމެކެވެ. އެއީ ހަމައެކަނި ބޮރިޖާ ބޭނުން ކުރުމަން ބަޔަކު



1995 ގެ ހުޅުމާލޭ ޑިވެލޮޕްމަންޓް ޕްލޭނުގެ ކުރަހުމެއް. ހުޅުމާލޭ އެންމެ ފުރަތަމަ ފަހުމާ ކޮންމެ ފަސްއިފަސް މުދުހިނދުގެ ޑެންސިޓީގައި ގޮރަކުއްޔާ ގޮތަށެވެ. އެންމެ އުސްކޮށް ހެދުނީ ހަތަރު ބުރިއަށެވެ. ވަރަށް ހިނގާޒަ ބާއްވަން ޖެހެއެވެ. ނަމަވެސް، އެކި ފުރަތު މަތިން މި ހަމަތައް ބަދަލުކޮށް މިހާރު އެތަން ފުފައިވަނީ މާލެއާ ގޮތުގަ ވަރަށް މީހުން ދިރިއުޅޭ ތަނަކަށެވެ.

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މާލެއާ އެންމެ ކައިރީގައި އޮތް ޖަޒީރާއެއް ޢިމާރާތް ކުރުމުގެ ކަމަށް ބޮޑު މަސައްކަތްތަކެއް ހުޅުމާލޭ، 1990 ވަނަ ނަވާރު ސަރުކާރަށް ނަސީބުވި މީހުން ދިރިއުޅެން އެ ރަށް އާބާދު ކުރުމުގެ ބޭނުންތެރިކަމެވެ. އެގޮތުން އެރަށުން ގޯތި ދޫކުރުމުގެ ފިޔަވަޅުގެ މަސައްކަތް ހިންގިއެވެ. އެތަން އާބާދުކުރުމުގެ މަސައްކަތް ކުރިއަށް ދަނިކޮށް 1992 ވަނަ އަހަރު އިސްލާހު ބަޔަކު، މާލެ އާއި ވިލިނގިލި ބަރިޔާކޮށް ގުޅުވައިލުމުގެ ހުދަކުދުގެއް ސަރުކާރަށް ހުށަހަޅައިފިއެވެ. "އެމީހުން ހުށަހެޅި އަންގާ ގޮތަކީ ކާބަލް ގާރު މުދުވަރިކޮށް ގުޅުއިލުން" ކަމަށް އެދުމަށްފަހު ފިހިކަލް ޕްލޭނިން ޑިޕާޓްމަންޓްގައި މަސައްކަތް ކުރައްވި، ފަހުން ވަޒީރުކަން ފުރިހަމަ ކުރައްވާފައިވާ އިބްރާހިމް ރަޝީދު ވިދާޅުވިއެވެ. އެމީހުން ހުށަހެޅި ވާހަކަ އަޑަކީ، 80 މިލިއަން ޑޮލަރެވެ. އެއީ ބަޖެޓުއް ސޮއާލެއް އަޑައި ދިނުމުގެ އަގެވެ. 1992 ގައި ސަރުކާރުގެ ބަޖެޓަކީ 1.1 ބިލިއަން ދިވެހި ރުފިޔާއެވެ. އެހެންކަމަށް ވުމާ އެކު އެއަށްގެ ކުޑަ އާބާދީއަކަށް އެވަރު ބޮޑު ހަރަދެއް ސަރުކާރަށް ނުކުރެވޭނެ ކަމަށް ނިންމިއެވެ. އިބްރާ މީހުންގެ ހުށަހެޅުމަކީ އެއްވެސް ދިރާސާއެއް ކުރުމެއް ނެތި ހުށަހެޅި ހުށަހެޅުމެކެވެ.

ރައީސް ނަޝީދުގެ ވެރިކަމުގައި ގެއިވެށި ބަޓުރު

ހިއްކައި، އެތަނުގައި މީހުން އާބާދުކުރުމަށް ފަހެއް އެވްމަގުގެ މަސައްކަތް ހިންގާން ފެށިއެވެ. އެ ދުވަސްވަރު މާލެއާއި ވިލިނގިލި ބަރިޖަކުން ގުޅައިލުމުގެ ހުވަފެން ފާހަގަކޮށް ސަރުކާރުގެ މަސައްކަތުގެ ދާއިރާއިން ދައްކާލިއެވެ. އެ ސަރުކާރަށް ފަހު 2013 ގައި އުފެދުނު ރައީސް ޔާމީނުގެ ސަރުކާރުން މާލެއާއި ވިލިނގިލި އަދި ހުޅުމާލެ ޖަލަދެމުން ބަރިޖަކުން ގުޅައިލުމުގެ ދިރާސާތަކެއް އޮތުމަން ޗައިނާގެ ބޭންކުތަކުގެ އެހީގައި ފަށާ ކޮންޓްރެކްޓު ހަވާލުކޮށް ފެށިއެވެ. 2018 ވަނަ އަހަރު ބޭއްވި ރިޔާސީ އިންތިޚާބުގެ ކުރިން މި ދަނޑުވަޅު ބްރިޖްގައިވާ މައުލޫމާތު ކުރެހުނުތަކާއިލު ސަރުކާރުން ހާމަކުރެއްވިއެވެ. އެ ބްރިޖްގައިވާ ގޮތުން އެ މަސްރޫއަށް 350 މިލިއަނާއި 438 މިލިއަން ޑޮލަރާ ދެމެދުގެ މިންވަރެއް ޚަރަދުވާނެކަމަށް އަންދާޒާކޮށްފައި ވެއެވެ. 2018 ގައި އުފެދުނު ރައީސް ޞާލިޙުގެ ސަރުކާރުގެ ފިނޭންސް މިނިސްޓަރ އިބްރާހީމް އަމީރު ޖޫން 2019 ގައި މީޑިއާ އާ ވާހަކަދައްކަވަމުން ވިދާޅުވީ އެ ދިރާސާތަކުގެ މައްސަލަ ބަލައި ބްރިޖް އެޅުމާ ބެހޭ މަސްވަރާތަކެއް އާ ސަރުކާރުގެ މަސްއޫލިއްޔަތުން ކުރައްވަމުން ގެންދާ ކަމަށެވެ.

ވިލިނގިލި ކުރަހައި ފަރުމާކޮށް ހުދުމުގެ އިސް ޑިސްޓްރިކްޓް މަސައްކަތް ކުރި އެސްޓޯނިއާ ރައްޔިތެއް

އަޅައިގެން ހިއްކާ ފަރަމުގެ އެއްވަސް ގޮތަކަށް ނުހިފެހެއްޓޭނެއެވެ.

އަލްއުސްތާޛު މައުމޫން އަބްދުލްގައްޔޫމް 1978 ގައި ރައީސް ކަމުގެ މަގާމާ ހަވާލުވެވަޑައިގެންނެވި އިރު ހުޅުލޭގައި ބަލާނީ ފެންވަރުގެ ވައިގެބޯޓުދަތުރަށް ހުޅުވުމުގެ މަސައްކަތް ވަނީ ފެށިފައެވެ. އެ ބަނދަރު ހުޅުވީ 1981 ވަނަ އަހަރުއެވެ. ހުޅުލޭ ފަޅުން ބިން ހިއްކުމުގެ ކުރިން މާލޭގެ ދެކުން ފަރާތާއި ހުޅަނގު ފަރާތް ހިއްކުމުގެ މަސައްކަތް 1979 އިން ފެށިގެން ކުރިއަށް ދިޔައެވެ. އެ މަސައްކަތް ކުރެއްވުމުގެ އެންމެބޮޑު ބާރުއެޅުއްވި


އަލްއުސްތާޛު މައުމޫން އަބްދުލްގައްޔޫމް

މާލެއިން އިތުރަށް ގޯތި ދެއްވުމާއި ސަރުކާރުގެ އެހި ކަންކަމަށް ބޭނުންވާ ބިން ހޯއްދެވުމެވެ.

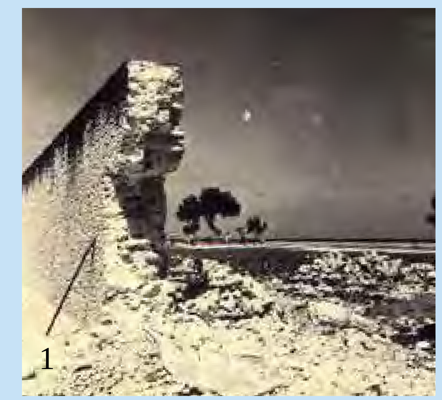
ބޮޑު ހުނަސަން ކިޔާ ޖެންޓްރީގެ

ރައްދިވަކު 1984ވަނަ އަހަރު ރާއްޖެ ގެނުވުނެވެ. ހުނަސަން މަސައްކަތް ކުރަމުންދިޔައީ ޖަޕާނުގެ އޮފް ޖިޖިކަލް ޖުޑާރިންގެއެވެ. އެއި ރިކްލަމޭޝަން ޕްރޮޖެކްޓްސްގެ އެސޯސިއޭޓްސްއެވެ. އޭގާ ހުރި އެސައިންމަންޓްގައި ހުރަހަޅާފައި އޮތީ ގިނަ ބާރަށް ދިރިއުޅޭ ސަރަހައްދުތަކަށް ހުޅުލޭ ހިދިރާންކަމަށެވެ. ނަމަވެސް އެ ޕްރޮޖެކްޓް ސަރުކާރުން ގަބޫލުއް ނުކުރެއްވިއެވެ.

ހުޅުލޭ އެއަރޕޯޓް ބޮޑުކުރުމުގެ ރަސްމިއްޔާތު ރައީސް އިބްރާހީމް ނާޞިރު ފުއްޓަވައިދެއްވަނީ. އަރިމަތީގައި އޭރުގެ ޓްރާންސްޕޯޓް މިނިސްޓަރ މައުމޫން އަބްދުލްގައްޔޫމް.


މާލެއާއި ފުނަދޫ ގުޅައިލުމުގެ މަސައްކަތަކަށް މާލޭ ފަޅުތެރެއިން ކަނޑުފާރުގާ ހަމައަށް ހިއްކާފައިވާ ފަރަމުން. ފުނަދޫއާ މާލެއާ ދެމެދު ފުންމިން 120 ފޫޓަށް ވުރެ ފުންވެފައި، އޭރު ގެދަރުކަމުން، ގައު އަޅައިގެން ހި ދަމުން ފަރުމުން އަޅަން ވަރަށް ދަތިވެއްޖެއެވެ. ފަރުން ފަޅަށް ހިދަމުންދިޔަ ދުރުމިނަކީ 1300 ފޫޓެވެ.


އިބްރާހީމް ނާސިރު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(1) މާލެ އިރުމަތީ ފަރާތު ބޮޑުފާރު. މި ބޮޑު ފާރަކީ މާލޭގެ ބިން ފަރާތުގައި ދިރާއި ބޭނުމަށް ބޮޑުރަސްގެފާނު ބިނާކުރައްވާ ފާރެކެވެ. މިފާރު ތަޅައިލެވުނީ އިބްރާހީމް ނާސިރުގެ ވެރިކަމުގައެވެ. (2) ގެދަރާއި ހުޅުލޭ ގުޅައިލުމުގެ މަސައްކަތް ނާސިރު ބައްލަވައިލައްވަނީ. (3) ގެދަރާއި ހުޅުލޭ ގުޅައިލުމުގެ މަސައްކަތް ކުރަމުން ދަނީ - ހުޅުލޭ ކޮޅުން

އަމީން ދީދީގެ ވެރިކަމުން ފަހު ވެލާނާގެ އިބްރާހީމް ނާޞިރުގެ ބޮޑުވަޒީރުކަމުގައި ހުޅުލޭ ފަޅުތެރޭގައި އޮތް ގޯދޫ ހުޅުލެއާ ގުޅުއްވުމަށްޓަކައި ވެލިއަޅުއްވައިގެން ހިއްކަން ފެށީ 1968 ވަނަ އަހަރުގެ ފެބްރުވަރީގެ 7 ވަނަ ދުވަހުއެވެ. ގޯދު އާއި ހުޅުލު ގުޅައިލުމާއެކު ރަންވޭ ބޮޑު ކުރުމުގެ މަސައްކަތް ފެށިގެން ދިޔައެވެ. އަދި ފަހުން ބައިނަލްއަގްވާމީ ވައިގެބަނދަރަކަށް ހުޅުލު ހެދުމަށް ހުޅުލޭގައި ދިރިއުޅުން މީހުން މާލޭގެ ހުޅަނގު ފަރާތު ފަޅު ހިއްކުމަށް ފަހު މާފުށަށް ބަދަލު ކުރެއްވިއެވެ.

ނާޞިރުގެ ވެރިކަމުގައި މާފުށާއި ފުނަދޫ އެއަރޕޯޓްތަކާ އަތޮޅުތަކުގެ ކަނޑު ހިއްކުމުގެ މަސައްކަތް ފެށް ފެއްޓިއެވެ. ނަމަވެސް އެއީ ވަރަށް އާދައިގެ ގޮތެއްގައި ކުރައްވަން ފެއްޓި މަސައްކަތެކެވެ. ފެނުފުށާއި މާމިގިލި މީހުން ރަށްވާ ހުރުން ގައުނަގައި ސަރުކާރަށް ގަދަ ބައްލަވައިގެން އަތޮޅުތަކުގެ ކަނޑަށް އަޅުއްވަމުން ގެންދިއެވެ. "ޖީންގަނޑުވިނަ" ކިޔާ ދަގަނޑު ބޮޅެއްވެސް ބޭލި ހަލާކު ވުމުން އެތަނަށް ފަށްތަވައިލައްވިއެވެ. އަދި މިނޫނަސް ބައެއް ތަކެތި އެތަނަށް އަޅުއްވަމުން ގެންދިއެވެ. ބޮނޑު ގޮތުގައި ބޮޑުފާރު ބައެއް ބަޔި ބުރުޖެތައް ތަގާތި އިރު ހުރި ގައުކަނޑުތައް ފަސް އެތަން ހިއްކުމަށް އެޅުއްވިކަމަށް ވެއެވެ. ދުވަސްކޮޅެއް ވަންދެން މިމަސައްކަތް ކުރައްވަމުން ފަހު ނަތީޖާ ފެނިވަޑައިގަންނަވާތީ އެކަން ހުއްޓަވައިލައްވިއެވެ. އެ ދުވުދުގައިވާ ކަނޑުގެ ފުންމިނުގައި ގާތްގަނޑަކަށް 40 މީޓަރު ހުންނާނެއެވެ. އަދި ދިގުމިނުގައި 500 މީޓަރު ހުންނާނެއެވެ. އެހެންކަމުން ވަރަށް ގިނަ ގަޑު ބޭނުން ވާނެއެވެ. މިއާއެކު، އަގާ ޚަރަދުގެ ސަބަބުން، ގައު

މާލޭގެ އާބާދީ ބޮޑުވެ އެ އާބާދީއަށް މާލޭގައި އުޅެވޭ ވަރު ނުވާ ދުވަހަކުން ވިލިނގިލީއާއި ހުޅުލޭގައި މީހުން ދިރިއުޅޭނެކަމުގެ ވާހަކަ މަޝްވަރާ ދިޔައީ އަދިރުބު ފަސޭހަތަކުގެ ސަރުކާރުން ބަހާރުއްދީން ވެސް ބައެއް ބޫދުޖެންގެ އަރިހުގައި ވިދާޅުވެފައިވެއެވެ. އެގޮތުން ބަހާރުއްދީންގެ ދަރިވަރުންގެ ގޮތުގައި މިވާހަކަ ވިދާޅުވާކަމަށް، ތަރިހާ ބޮޑު ބައެއް ފޮތްތަކަށް ލިޔުއްވި ތަނބެރަތުމާގެ އަބްދުލް ޝަކޫރު ވިދާޅުވެފައި ވެއެވެ.

ފެށަތަވަ ޖުމްހޫރީ ދުވަހުގެ ބައެއް ތަސްވީރު ތަކާއި ރަސްމިއްޔާތުތަކުގެ ބެލުއިން
އަމީން ދީދީ.

މާލޭގެ ބިޔަބޮޑު ވިލިނގިލީއާއި ހުޅުލޭގައި މިހެން ދިރިއުޅެން ޖެހޭ ދުވަސް އަންނާނެކަމަށް ރާއްޖޭގެ ޖުމްހޫރީ ވެރިކަމުގެ ފުރަތަމަ ރައީސް މުޙައްމަދު އަމީން ދީދީ ހިތާމަވާގޮތުގައި ފެނެއެވެ. އަމީން ދީދީގެ އެ ޚިޔާލުފުޅު 1950 ގެ ކުރީކޮޅުގެ އަހަރުތަކުގައި "ސަރުކާރުގެ ހަބަރު" ކިޔާ ނޫހުގައި ޝާއިޢު ކުރައްވާފައިވެއެވެ. އެފުޅުގައި ވާގޮތުން މާލޭގެ ބިން އަޑު ފުރުޅުން ދަކާއި ކުޑަވަރު ކުރެވޭ ތަންތަނާއި ގޮވި ދޮން ބިން ހިސާވޭހުންދަނޑި އެންމެ ރަނގަޅު ގޮތަކީ މުސްތަޤުބަލުގައި ވިލިނގިލީއާއި ހުޅުލޭގައި މިހެން ދިރިއުޅެން ފެށުންކަމަށް ހިތާމަކުރައްވައިގެން. އެހެންވެ، އެ ހިތާމަވާ ރައްޔިތުންނާއި ސަރުކާރުގެ ސަމާލުކަމަށް ގެންނެވުމަށް އެ މަނިކުފާން ލިޔުއްވައި ޝާއިޢު ކުރައްވައިފައެވެ. އެއީ ދުރު މުސްތަޤުބަލުގައި ވާނީ ކަލޭއްކަމަށް ދޮނުވެއްޖެނަމަ ހުސްފަސް ހިތާމަވާނީކަމެވެ. ވިޔަފާރީގެ މައި ބަރަކަތް ހުޅުލެ ބަދަލު ވެގެންކަމަށް ވެސް ދޮނުވެއްޖެނަމަ އެވެ. އެއީ އާބާދީއަށް އަންނަ ބަދަލާ ގުޅިގެން ވާން ކަލޭއް ކަމަށް ދޮނުވެއްޖެނަމައެވެ. އަދި އެއީ ކަންތައްތަކުގެ ކުރަންޖެހޭ ކަލޭއް ކަމުގައި ވެސް ވިދާޅުވެފައިވެއެވެ.

މުޙައްމަދު އަމީނަށް ރާއްޖޭގެ ރައީސުލްޖުމްހޫރިއްޔާކަމުގައި ހުންނެވީ ހަތްމަހާއި އެކާވީސް ދުވަސްއެވެ. ބޮޑުގެ މުއައްރިޚުން ބުނާގޮތުގައިވެސް މުޙައްމަދު އަމީން ރާއްޖޭގެ ވެރިކަމަށް ވަޑައިގަތީ މާއަވަހަށް ކަމަށެވެ. އެކަމާ ގުޅިގެން ކަމަކީ ގޮތުގައި، އަމީން ދީދީގެ ސިޔާސީ ފިކުރާއި އުފެދުނު ދެވަނަ ސިޔާސީ ތަރައްޤީ ވެސް އޭގެ 100 އަހަރު ފަހުންނެވެ.

ޒިޔާރާއި ފިކުރު
ބިޔަފަހަރެއް

PHOTO: ISMAIL NIYAZ

ވާހަކަ

ތާރީހަށް-ފެންނަ ފުރަތަމަ ޕުލް ޕާ ދިގު ސަފަރު

ދ.ގ.ދ. ދިވެހި ބަހުގެ
ތަރުޖަމާ ދާއިރާ
ތާރީޚުދާ ޝިއުބާ

ދިވެހި ބަހުގެ ގަވާއިދާ ގުޅޭ
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