



Phase 1 (September 2020 - 31 December 2022)

Concluding Report



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JENDELA THE EXECUTIVE SUMMARY

Pelan Jalanan Digital Negara or JENDELA was launched in September 2020 with the goal of improving the quality of digital infrastructure and services across the country. Through collaboration with industry players as well as support from relevant ministries and government agencies over nine (9) quarters, Phase 1 of JENDELA successfully concluded in December 2022.

Phase 1 (2020 – 2022) focused on optimising existing resources and infrastructure for mobile as well as fixed broadband services. This would pave the way for Phase 2 (2023 – 2025), expanding the use of 5G network services nationwide.

By the end of the five-year national digital infrastructure plan, JENDELA aims to deliver fibre connection for nine (9) million premises, 100% Internet connectivity for populated areas, and increased the mobile broadband speed to 100 Mbps*.

The unwavering commitment to build this robust digital infrastructure will be pivotal to Malaysia's digital transformation and in bridging the digital divide for rural, urban and even B40 communities. By empowering Malaysians with the vital facilities and backed by skills training, everyone will have the opportunity to flourish in the digital economy.

(*) The figure is based on mean or average speeds recorded.

Overcoming challenges in the last nine (9) quarters which included difficult terrain, global material shortages as well as delayed state approvals due to the pandemic, ending 2022 saw JENDELA Phase 1 achieve:

- a. 7.74 million premises passed with gigabit speed
- b. 4G coverage in 96.92% of populated areas
- c. 116.03 Mbps* mobile broadband speed for Malaysia mobile subscribers
- d. 839 sites via Satellite Broadband (BWA) completed

These achievements exceeded the initial target set at the beginning of this initiative with 7.5 million premises passed with gigabit speed, 96.9% 4G coverage in populated areas and 35 Mbps* mobile broadband speed.

Other important milestones in Phase 1 include the 5G rollout and satellite connectivity being brought forward from Phase 2 to Phase 1 to address connectivity challenges in rural and remote areas as well as better 4G coverage following the refarming of the 3G spectrum.

The achievements of JENDELA Phase 1 lay the groundwork and give a solid start for Phase 2 (2023 – 2025) when wider Internet coverage on 5G and multiple future technologies such as satellite technology, take centre stage to deliver connectivity at higher speeds with greater reliability all over Malaysia as well as improve the quality of experience. As of 31 December 2022, the 5G network rollout in populated areas has reached 47.1% from the target of 37.9%. It is expected that the target of 80% coverage in populated areas at the end of 2023 can be realised.

(*) The figure is based on mean or average speeds recorded.

THE JENDELA JOURNEY

JENDELA was launched in September 2020 and has now concluded its Phase 1 (2020 - 2022), focuses on optimising existing resources and infrastructure for mobile and fixed broadband. Throughout the journey, JENDELA has gained acknowledgement and approval at various national platforms. With the strong support and collaboration with various ministries and government agencies, the deployment of digital infrastructure was able to be expedited. Some of notable milestones included federal recognition of telecommunications as public utility, adoption of *Garis Panduan Perancangan Infrastruktur Komunikasi* (GPP-I) by the respective state governments and the establishment of *Jawatankuasa Penyeragaman Kos Caj dan Fi Pembangunan Infrastruktur Komunikasi* approved by *Mesyuarat Menteri Besar dan Ketua Menteri* (MBKM).

JENDELA Phase 2 (2023 – 2025) will be focusing on speedy deployment of 5G network services to boost digital connectivity nationwide.

THE JENDELA JOURNEY

JENDELA has gained acknowledgment and approval at various platforms. Some of them are :

2020

27 Oct JENDELA and *Garis Panduan Perancangan Infrastruktur Komunikasi* (GPP-I) presented at *Mesyuarat Majlis Perancang dan Fizikal Negara* (MPFN)

2021

19 Feb & 27 Sept Announcement of JENDELA in MyDigital and RMK-12

3 Mar JENDELA, GPP-I and Telecommunications as 3rd Public Utility approved in *Mesyuarat Majlis Negeri dan Kerajaan Tempatan* (MNKT)

2 June Endorsement of 'Telecommunications as a Public Utility' by The Cabinet

13 July UBBL 1984 amendment that also includes the use of new G20 form approved by MNKT

13 Aug JKT sent a letter to SUK of 11 states in Semenanjung and KSU *Kementerian Wilayah Persekutuan* (KWP) to gazette the approved UBBL amendment

2022

28 June Establishment of *Jawatankuasa Penyeragaman Kos Caj dan Fi Pembangunan Infrastruktur Komunikasi* approved by *Mesyuarat Menteri Besar dan Ketua Menteri* (MBKM)

2023

14 Mar JENDELA won WSIS Prizes 2023 award in category C2 – Information and communication infrastructure at World Summit on the Information Society (WSIS) 2023, ITU, Geneva

JENDELA TARGETS

JENDELA aims to enable enhanced coverage and good quality of experience to the people nationwide. By the end of 2025, JENDELA aspires to fiberise nine (9) million premises with gigabit speed, 100% Internet coverage in populated areas and 100 Mbps* mobile broadband speed.

For the Phase 1 of JENDELA (September 2020 - 31 December 2022), the target was to achieve 7.5 million premises passed with gigabit speed, 96.9% 4G coverage in populated areas and 35 Mbps* mobile broadband speed. Phase 1 also saw the gradual retirement of 3G networks by the end 2021, and Satellite Connectivity to improve mobile coverage in remote areas, which was previously in Phase 2, was brought forward to Phase 1 to serve more rural areas. The progress of Phase 1 influenced guiding principles and approach of Phase 2.

In addition, JENDELA Map was made available to the public in July 2021 to provide telecommunications service coverage availability by service providers and it allows users to provide feedback.

The support of all stakeholders also enabled us to advance the planning and rollout of 5G coverage and Satellite Connectivity from Phase 2 to Phase 1. This helped address connectivity challenges in rural and remote areas. As of 31 December 2022, the network is available at 47.1% coverage of populated areas with 3,906 sites across the states and federal territories.

(*) The figure is based on mean or average speeds recorded.

THE TARGETS

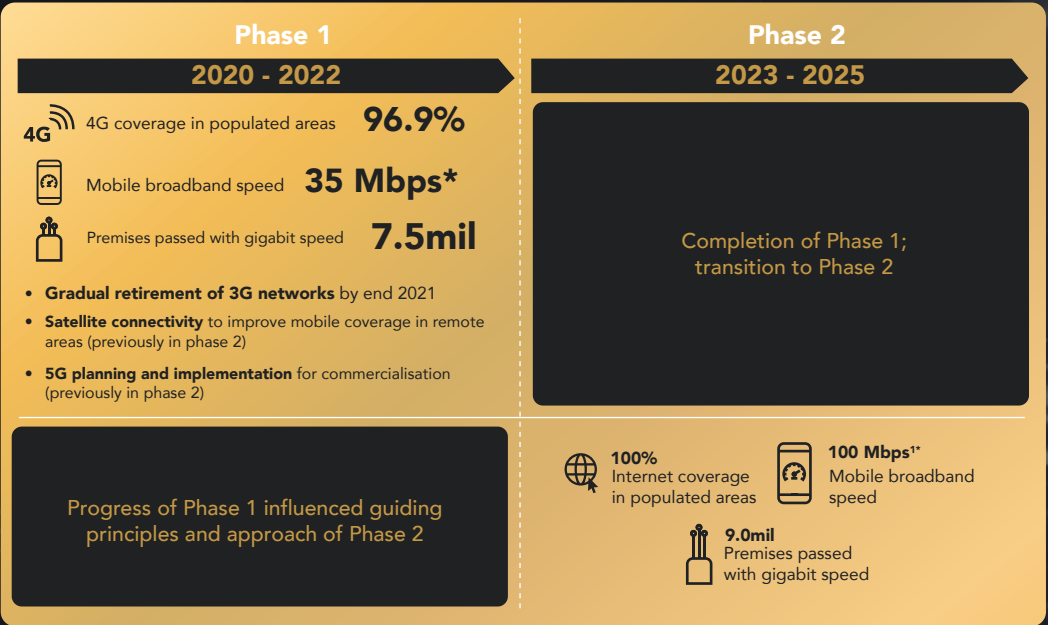


CONNECTIVITY FOR ALL

Enhanced coverage and quality of experience

Overarching National Initiatives

Note¹: As per existing roll-out plan by DNB under JENDELA.
(*) The figure is based on mean or average speeds recorded.



Telecommunications as a Third Public Utility

JENDELA Governance, Monitoring, and Reporting

5G Rollout

JENDELA PHASE 1 ACTION PLAN (2020 - 2022)

Telecommunication service providers and MCMC jointly carried out a total of eight (8) initiatives aimed at improving the overall connectivity and most were accomplished by end December 2022.

As of 31 December 2022, 7.74 million premises have access to fibre broadband while 96.92% of all populated areas have access to the 4G network. The mobile broadband speed has also increased to 116.03 Mbps*, far exceeding its initial target of 35 Mbps* in Phase 1. Going forward, we anticipate a challenging journey to cover the remaining 3% of populated areas with Internet coverage given their remote and interior geographical conditions.

The JENDELA Map was introduced in July 2021 and it has three (3) main functionalities which are coverage map, users' feedback and feedback status. It is an independent information system to guide and inform service providers and the public on the telecommunication services and coverage available. The public is able to check the fixed and wireless broadband coverage in their area and submit feedback or complaints on issues like connectivity downtime and coverage or dropped calls.

The support of all stakeholders has enabled us to advance the planning and rollout of 5G coverage and satellite connectivity from Phase 2 to Phase 1 to address connectivity challenges in rural and remote areas. A total of 839 sites have been deployed with Satellite Broadband, while in Cyberjaya, Putrajaya and Kuala Lumpur now enjoy 5G services followed by further expansions to other major towns in Malaysia.







(*) The figure is based on mean or average speeds recorded.



(*) The figure is based on mean or average speeds recorded.

Progress Update for JENDELA Phase 1

As of 31 December 2022, approximately 7.74 million premises have access to fibre broadband while 96.92% of all populated areas have access to 4G network. The mobile broadband speed has also increased to 116.03 Mbps*, far exceeding its initial target of 35 Mbps* in Phase 1 which is completed as at the end of 2022.

	 Premises Passed with Fibre Connectivity	 Mobile Broadband Speed*	 4G Coverage In Populated Areas
JENDELA Phase 2 Targets	9 mil Premises Passed	100 Mbps*	100%**
JENDELA Phase 1 Targets (End of 2022)	7.5 mil Premises Passed	35 Mbps*	96.9%
JENDELA Phase 1 Achievement (31 December 2022)	 7.74 mil Premises Passed	 116.03 Mbps* (Mean) 43.46 Mbps* (Median)	 96.92%
Baseline (September 2020)	4.96 mil Premises Passed	25 Mbps	91.8%

Notes:

* Based on monthly data from Ookla.

** 100% Internet Coverage in populated areas.

(*) The figure is based on mean or average speeds recorded.



DIGITAL INFRASTRUCTURE



JENDELA PHASE 1 OVERALL PERFORMANCE

To enhance the overall digital infrastructure, JENDELA monitors and tracks three (3) key components: fiberisation of premises, upgrade of base stations, and number of new mobile towers built. As of 31 December 2022, 7.74 million premises have access to fibre broadband while 96.92% of all populated areas have access to Internet coverage.

The mobile broadband speed has also increased to 116.03 Mbps*, far exceeding its initial target of 35 Mbps* in Phase 1 which is due to complete at the end of 2022.

(*) The figure is based on mean or average speeds recorded.

OVERALL DIGITAL INFRASTRUCTURE PERFORMANCE

To enhance the overall digital infrastructure, JENDELA monitors and tracks premises passed with fibre connectivity for fixed broadband, and three (3) key components under mobile broadband; upgrade of base stations, number of new mobile towers built and Satellite Connectivity. From September 2020 – December 2022, the industry players collectively fiberised 2,780,580 premises, upgraded 37,977 base stations to 4G technology, built 1,778 new mobile towers and enabled Satellite Connectivity to 839 sites to enhance the overall digital connectivity and experience.

While the infrastructure is in place, the benefits of connectivity will not be fulfilled if the users do not subscribe to the service, have basic digital literacy or have suitable devices.



Overall Digital Infrastructure Performance

	2020	2021	2022	TOTAL CUMULATIVE
	Sept - Dec 2020 CUMULATIVE	Jan - Dec 2021 CUMULATIVE	Jan - Dec 2022 CUMULATIVE	Sept 2020 - Dec 2022
FIXED BROADBAND				
 Premises Passed with Fibre Connectivity	456,757 134.5% Target: 339,536	1,434,142 106.1% Target: 1,351,663	889,681 87.5% Target: 1,017,146	2,780,580 Premises Passed 102.7% Target: 2,708,345
MOBILE BROADBAND				
 Base Station Upgrades to 4G Technology	16,367 100% Target: 16,367	13,813 103.2% Target : 13,391	7,797 94.3% Target : 8,271	37,977 Base Station Upgrades 99.9% Target: 38,029
 New 4G Towers	944 99.9% Target: 945	405 106.6% Target: 380	429 71.7% Target: 598	1,778 New 4G Towers 92.5% Target: 1,923
 Satellite Connectivity	NA	437 Locations	402 Locations	839 Locations

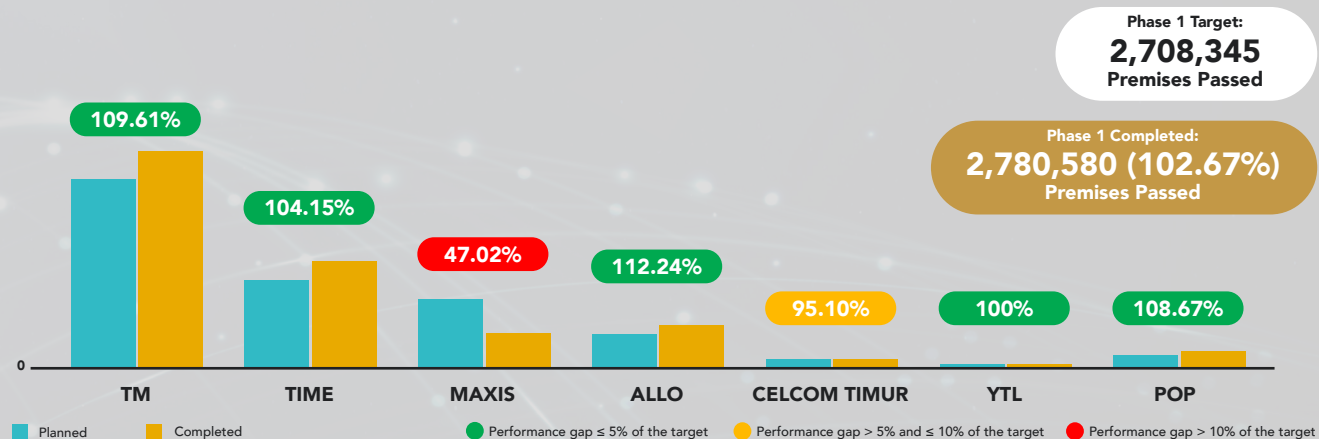
Note:

Certain target numbers are different compared to the targets that had been agreed during NDIL due to real situation on the ground during implementation. The targets have been reconciled based on challenges encountered, complaints and new demand from the public.

PERFORMANCE FOR PREMISES PASSED

The industry players have fiberised 2,780,580 or 102.67% premises as compared to the target of 2,708,345 premises. Most of the service providers including TM, Time, Allo and YTL overachieved the fiberisation. Maxis did not achieve the target due to delay of permit approval by local authorities in several states. Where else Celcom Timur's shortfall due to building readiness and this issue has been resolved, expected to complete by Q2 2023.

Summary of Service Providers' Performance for Premises Passed with Fibre Connectivity (Sept 2020 – Dec 2022)



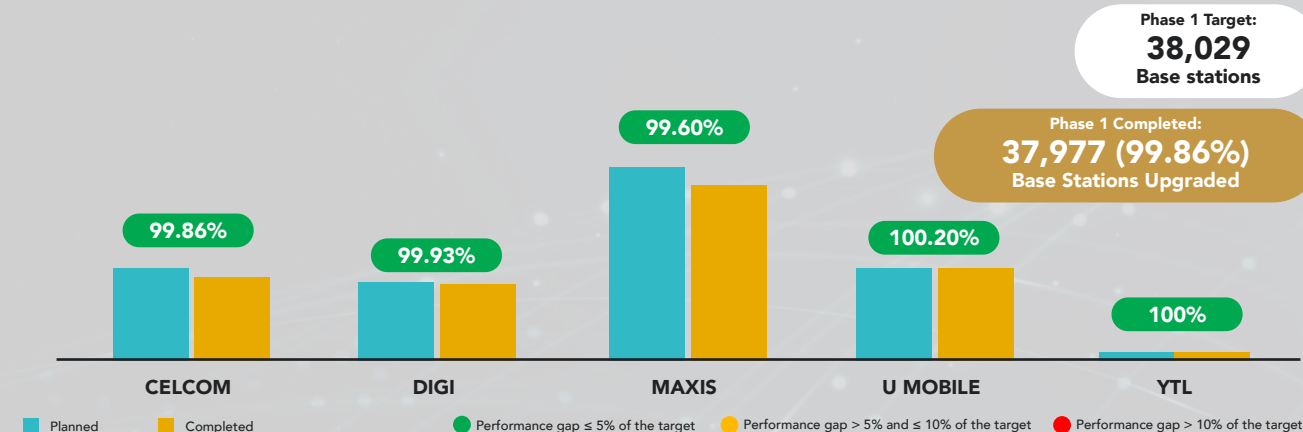
Note:

1. There is a shortfall for Maxis in USP FTTH project due to the delay of permit approval by local authorities in Johor, Melaka, Negeri Sembilan, Pahang, Kelantan and W.P KL.
2. Celcom Timur's shortfall due to building readiness and this issue has been resolved, expected to complete by Q2 2023.

PERFORMANCE FOR BASE STATION UPGRADES

For the base stations upgrade, the five (5) key mobile broadband service providers have upgraded a total of 37,977 base stations or 99.86% of its original target. U Mobile and YTL achieved its original target, while Celcom, Digi and Maxis achieved closed to 99% from their respective targets. The delay is due to local authority approval and access to the sites under Universal Service Provision (USP) projects.

Summary of Service Providers' Performance for Base Station Upgrades (Sept 2020 – Dec 2022)



Note:

1. Based on commercial and USP projects.
2. The delay is due to local authority approval and access to the sites under USP projects where some of the locations are in remote area which requires longer time to upgrade.
3. All sites are expected to complete by end of 2023.

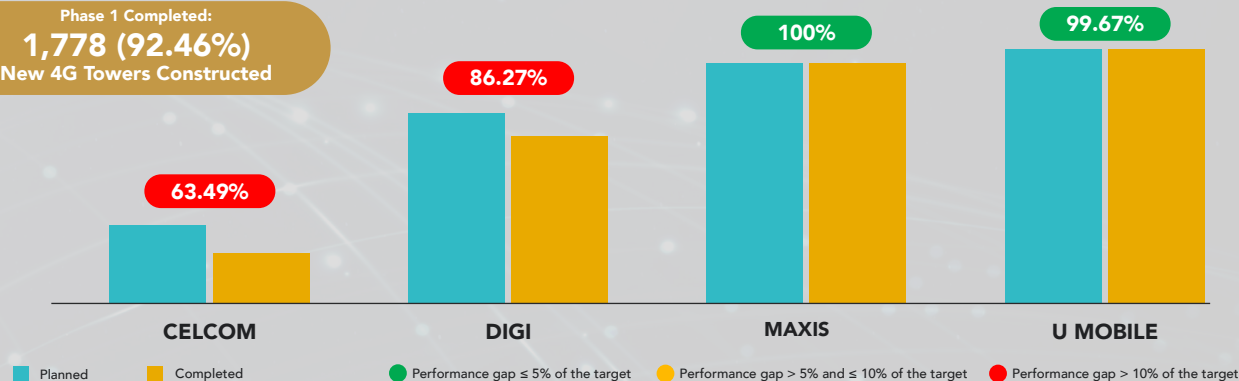
PERFORMANCE 4G NEW TOWERS

Maxis has successfully achieved its respective target for Phase 1, while U Mobile closing in at 99.67%. Meanwhile, Digi and Celcom did not achieve their respective targets due to local authority approval under USP projects and all sites are expected to complete by end of 2023.

Summary of Service Providers' Performance for 4G New Towers (Sept 2020 – Dec 2022)

Phase 1 Target:
1,923
New 4G Towers

Phase 1 Completed:
1,778 (92.46%)
New 4G Towers Constructed



Note:

1. Based on commercial and USP projects (except the JENDELA 1 project).
2. The delay is due to local authority approval under USP projects and all sites are expected to complete by end of 2023.

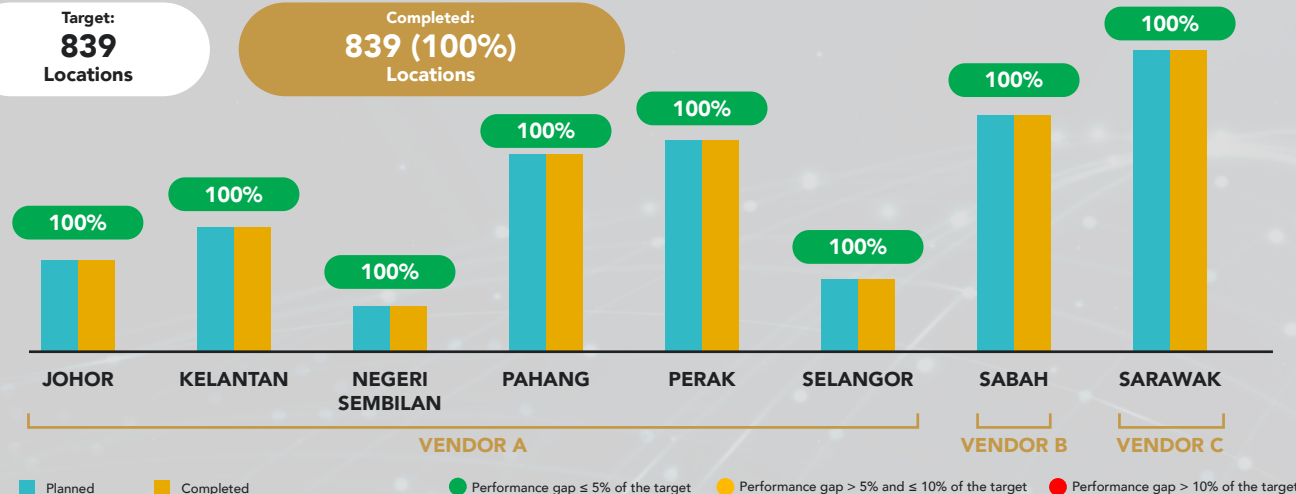
ACCESS VIA SATELLITE

To improve mobile coverage in rural and remote areas, JENDELA has identified 839 locations across eight (8) states – Johor, Kelantan, Negeri Sembilan, Pahang, Perak, Selangor, Sabah and Sarawak – to be provided with broadband wireless access via satellite. All 839 identified locations have successfully completed in Phase 1.

Summary Broadband Wireless Access via Satellite

Target:
839
Locations

Completed:
839 (100%)
Locations



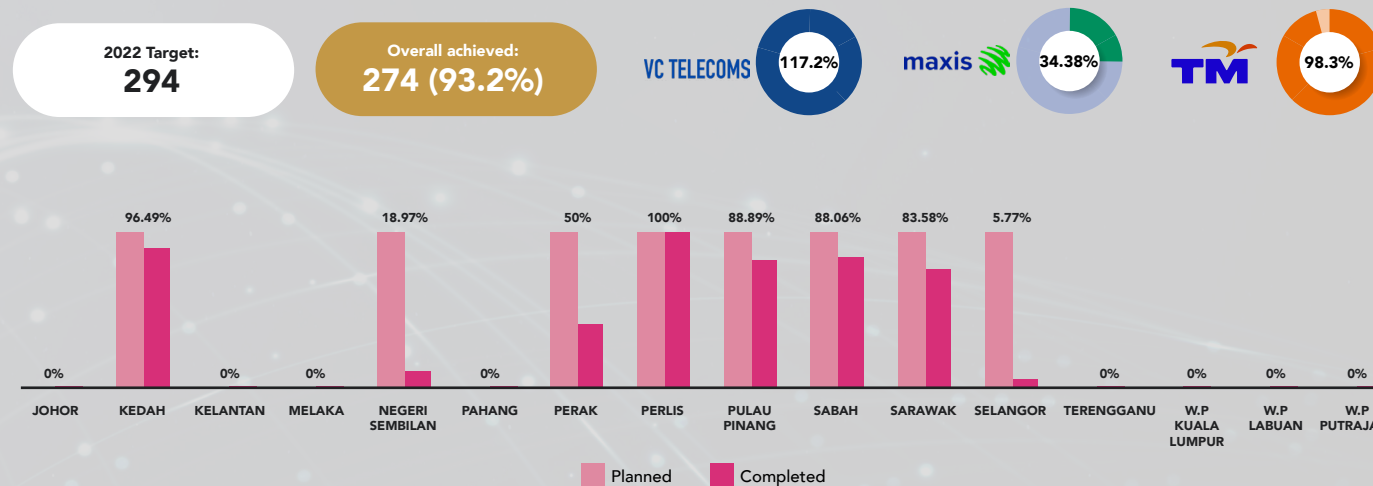
Note:

1. The project started in Q4 2021 and completed in Q2 2022.

POINT OF PRESENCE (PoP) PHASE 1

The Point of Presence (PoP) method of fibre optic hub was implemented to expand the broadband infrastructure network and coverage in areas around schools and populated areas to enable the availability of fibre access. The target for 2022 is 294 and as of 31 December 2022, 274 PoP have been achieved.

Point of Presence (PoP) Phase 1 – As of 31 December 2022



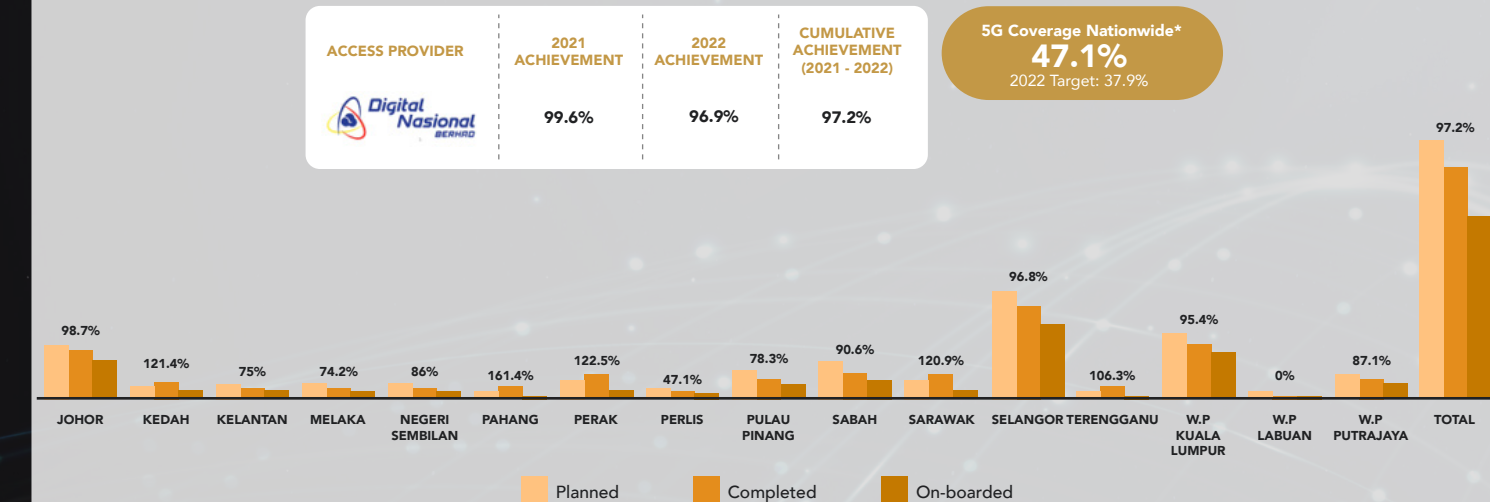
Note:

1. KKD highlighted that they had surrendered half of their budget allocation and revised the target for 2022 from 677 sites to 294 sites.

5G ROLLOUT PERFORMANCE

As of 31 December 2022, Digital Nasional Berhad (DNB) has achieved 47.1% from the target of 37.9% for the 5G network rollout in populated areas across the states and federal territories.

DNB's Performance of 5G Rollout 2022 - As of 31 December 2022



Note:

1. 5G Coverage in populated area is based on completed sites by DNB.
2. % in chart indicates completed sites vs plan.
3. 2 sites shortfall in 2021 due to vandalism and interference issues, hence DNB planned to relocate these sites.

ADDRESSING ISSUES AND CHALLENGES

As the regulator, MCMC is tasked with supporting the industry in working with state authorities to address identified challenges and/or issues through policy coordination. Among the issues settled were:

- Recognition of communication infrastructure as the third public utility.
- The adoption of *Garis Panduan Perancangan Infrastruktur* (GPP-I) at State Communication Infrastructure Permit Management (CIPM) system to monitor the status of communication structure permit.
- Communication Infrastructure Permit Management (CIPM) system to monitor the status of communication structure.
- Establishment of *Majlis Digital Negeri* or *Jawatankuasa Infrastruktur Negeri* to facilitate issues on the communication infrastructure development.
- Establishment of *Jawatankuasa Khas Penyeragaman Kos Caj dan Fi Pembangunan Infrastruktur Komunikasi* approved by *Mesyuarat Menteri Besar dan Ketua Menteri* (MBKM) on 28 June 2022. Engagement session between *Kementerian Sumber Asli, Alam Sekitar dan Perubahan Iklim* (NRECC) and stakeholders was held on 3 February 2023.

As of 31 December 2022, all States are reviewing the UBBL amendments which includes G1 - G21 forms and yet to gazettethe amendments.

POLICY COORDINATION AT STATE LEVEL

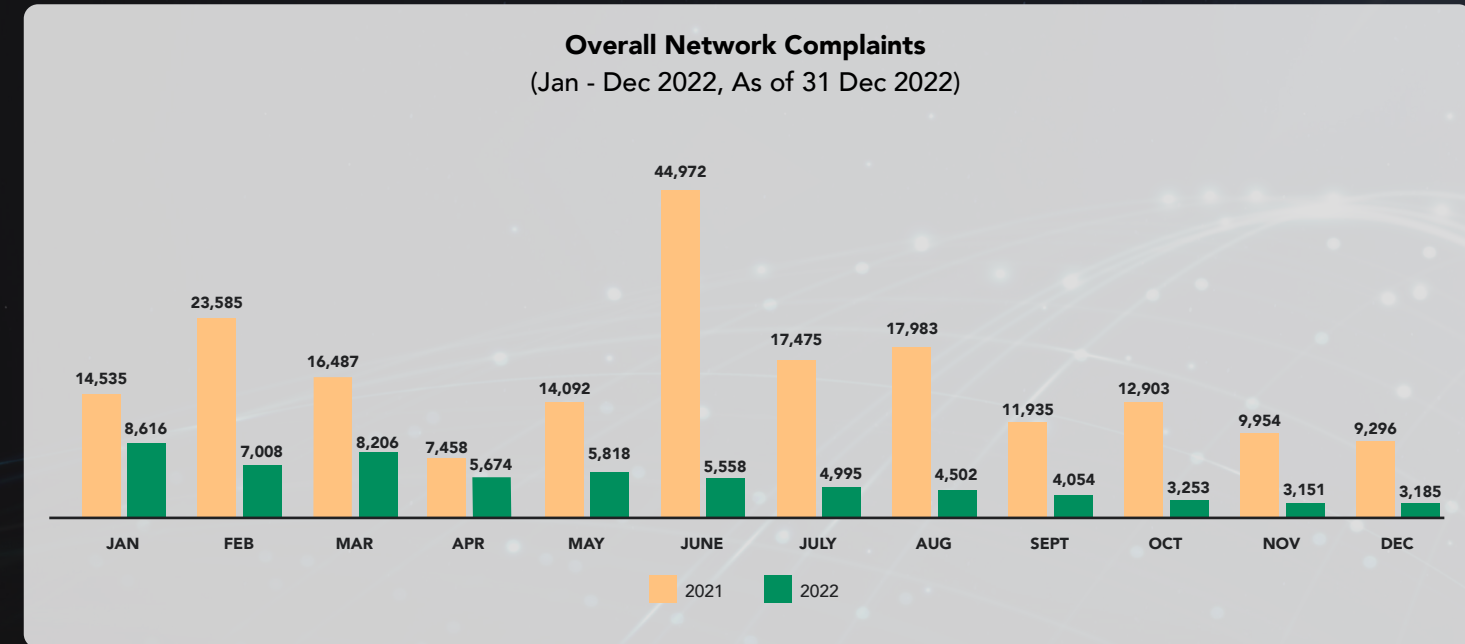
- Recognition of communication infrastructure as a public utility ✓
- Adoption of *Garis Panduan Perancangan Infrastruktur* (GPP-I) at State ✓
- Communication Infrastructure Permit Management (CIPM) system to monitor the status of communication structure ✓
- Establishment of *Majlis Digital Negeri* or *Jawatankuasa Infrastruktur Negeri* to facilitate issues on the communication infrastructure development ✓
- Establishment of *Jawatankuasa Khas Penyeragaman Kos Caj dan Fi Pembangunan Infrastruktur Komunikasi* approved by *Mesyuarat Menteri Besar dan Ketua Menteri* (MBKM) on 28 June 2022. Engagement session between NRECC and stakeholders was held on 3 February 2023.
- As of 31 December 2022, all States are still reviewing the UBBL amendments which includes G1-G21 forms and yet to gazette the amendments



CONSUMER COMPLAINTS

OVERALL NETWORK COMPLAINTS

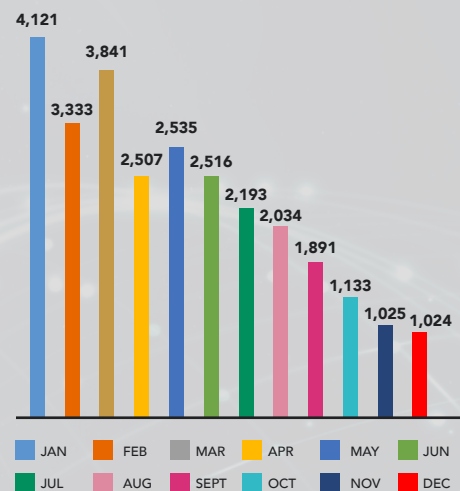
Since 1 January until 31 December 2022, MCMC received 64,020 network complaints. Overall trend of network complaints in 2022 have significantly reduced as compared to 2021 (200,675). Month-to-month trends in 2022 also shows reducing pattern from 8,616 (January) until 3,185 (December).



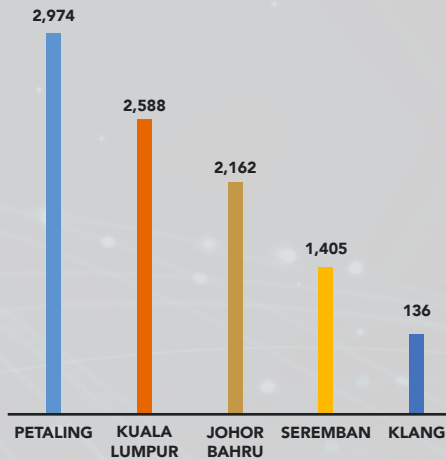
OVERALL NETWORK COMPLAINTS (Jan - Dec 2022, as at 31 Dec 2022)

The complaints received were dominated by cellular services with the issue of 4G quality of services.

Poor Coverage 4G/LTE



COMPLAINT - Top 5 Districts



Efforts to reduce the number of complaint and improve broadband service



Quality Check

Appointment of consultant to undertake the quality assessment.



Traffic Monitoring

Monitor traffic utilisation and planning for capacity improvement or changing traffic routes.



Awareness

Continuous awareness to educate the consumers i.e. migration to 4G services, use of device that support 4G VoLTE, understanding of packages which has certain limitation especially on speed.

Note:

1. The service providers are committed to enhance 4G quality to reduce the number of complaints related to 4G quality of services.
2. With the completion of 1,661 new 4G towers under JENDELA 1 project, it is expected that the complaints at rural areas will be further reduced as a result of better 4G coverage and quality received by the Rakyat.





JENDELA SUCCESS STORIES

JENDELA enables the people and the economic sector to embrace the tide of digitalisation. With comprehensive and quality Internet access, all Malaysians can enhance their digital skills and enjoy the benefits of digital transformation.



Kg. Lubok Pandan, Marang,
Terengganu



Kg. Orang Asli Pulau Kempas,
Banting, Selangor



Kg. Orang Asli Senggala
Port Dickson, Negeri Sembilan



Kg. Orang Asli, Sg Judah,
Selangor



Kuala Boh, Pahang



Kuala Krai, Kelantan



Ranau, Sabah



Rumah Panjang Kubong
Mataden, Sarawak



Simpang Bayan,
Ulu Mukah, Sarawak

JENDELA MAP ENHANCEMENT

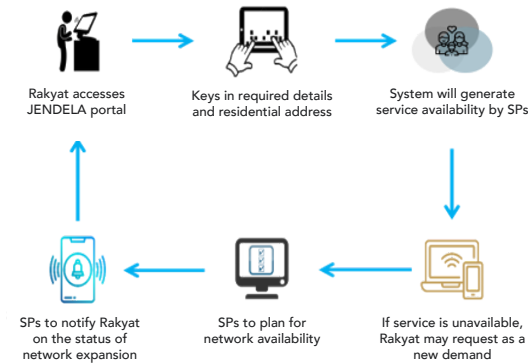
JENDELA Map is a coverage map where the public can check fixed and wireless broadband coverage in their area and submit feedback on issues like connectivity downtime and coverage or dropped calls.

The JENDELA Map is accessible on both the web and app platforms and provide users with details about the *Pusat Ekonomi Digital* (PEDi) and various places of interest.

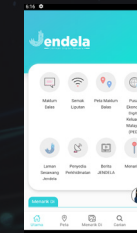
Objective of JENDELA Map

- To provide information on the current state of digital infrastructure and availability of digital connectivity
- To coordinate measures to address coverage and speed gaps for fixed and mobile services
- To optimise use of resources including planning of infrastructure sharing and reducing duplication

Holistic Rakyat Experience



JENDELA Map
(Web Version)
<https://jendela.my>



JENDELA Map
(Mobile Application)

Features



Coverage



Feedback



News



Menarik Di



PEDi



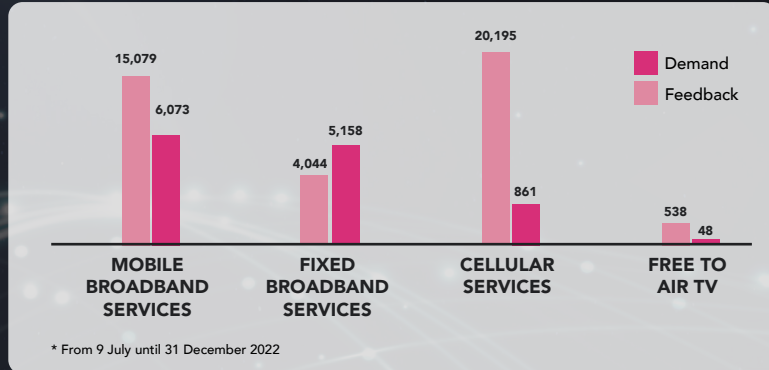
JENDELA
Information



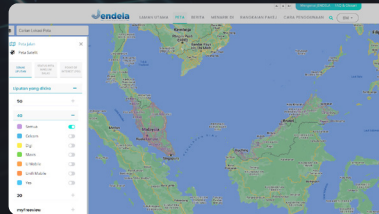
Integration with
ADUAN System

JENDELA MAP FEATURES AND STATISTIC

Between January 2022 - December 2022, JENDELA Map had 96,796 visitors and most visited feature is network coverage, with 189,215 accesses, while Chatbot AIDA has achieved 20,529 chats.



JENDELA Portal



JENDELA Feedback Map Status

Status (As of December 2022):



Total no of visitors:
96,796



Most visited feature:
Network coverage
(189,215 access)



Chatbot AIDA:
20,529 chat

JENDELA, which began in September 2020 with the goal of improving the quality of digital infrastructure and services across the country, has met its Phase 1 objectives by bridging the digital divide and reinforcing the digital transformation to enable all Malaysians, regardless of location or social status, to ride the wave of new opportunities as the nation marches further into the digital economy.

JENDELA Phase 2 (2023 - 2025) will focus on providing Internet coverage for the remaining three percent (3%) of the populated area and expanding gigabit access for fixed line broadband to nine (9) million premises nationwide. This effort is in line with the aspiration of empowering connectivity and digital infrastructure to improve and enhance Internet facilities with the aim of providing quality Internet services to the people.

As Internet connectivity becomes ever more important, new technologies are emerging to connect the world with better and faster service. Therefore, this is imperative towards meeting the goals of the 12th Malaysia Plan to transform Malaysia into a high-income nation through the use of technology and digitalisation.



Winner of
WSIS PRIZE 2023

For

Information and communication
infrastructure



A Proud National Accolade



SURUHANJAYA KOMUNIKASI DAN MULTIMEDIA MALAYSIA
Malaysian Communications and Multimedia Commission

