



**07.**  
**BAB**  
**CHAPTER**

## BAB 07 Pengurusan Teknologi Maklumat dan Komunikasi

## Information and Communication Technologies (ICT) Management **CHAPTER 07**

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**PENGURUSAN TEKNOLOGI  
MAKLUMAT DAN KOMUNIKASI  
INFORMATION AND  
COMMUNICATION TECHNOLOGIES  
(ICT) MANAGEMENT**

Bahagian Teknologi Maklumat telah diberi tanggungjawab untuk menyediakan infrastruktur dan perkhidmatan teknologi dan komunikasi maklumat (ICT) kepada Jabatan Alam Sekitar (JAS). Ini termasuklah melaksanakan perolehan perkakasan, perisian dan perkhidmatan ICT; merancang, membangun, melaksana dan menyelenggara sistem-sistem aplikasi Jabatan serta menyokong pelaksanaan aplikasi-aplikasi Kerajaan Elektronik (MyEG) di Jabatan; menyedia, memantau dan menyelenggara perkhidmatan rangkaian komunikasi Jabatan; memantau dan mengawal selia keselamatan ICT di seluruh Jabatan selaras dengan dasar keselamatan ICT JAS; menyediakan latihan-latihan ICT serta menyediakan khidmat nasihat dan sokongan teknikal ICT kepada para pengguna di Jabatan.

**SISTEM ONLINE ENVIRONMENTAL REPORTING  
(OER)**

Bagi meningkatkan pelaksanaan pemantauan sendiri di kalangan industri, Bahagian Teknologi Maklumat bersama-sama dengan Bahagian Penguatkuasaan telah bekerjasama untuk memperluaskan skop Sistem MDMR (Monthly Discharge Monitoring Report) yang sedia ada melalui penambahan modul-modul baru iaitu modul Kilang Getah, modul Kilang Kelapa Sawit dan modul Larut Resap, serta menambahbaik modul-modul sedia ada iaitu modul Kilang Getah, modul Kilang Kelapa Sawit dan modul

The Information Technology Division is responsible for the provision of information and communication technology (ICT) infrastructure and services to the Department of Environment (DOE). This includes the procurement of hardware, software and ICT services; planning, developing, implementing and maintaining application systems within the department as well as in supporting the implementation of the Electronic Government (MyEG) application systems at the department through providing, monitoring and maintaining the department's network and communication services; monitoring and protecting ICT security within the entire department in compliance with the DOE ICT Security Policy; providing ICT training, as well as providing ICT technical advice and support to the users of the Department.

**ONLINE ENVIRONMENTAL REPORTING  
SYSTEM (OER)**

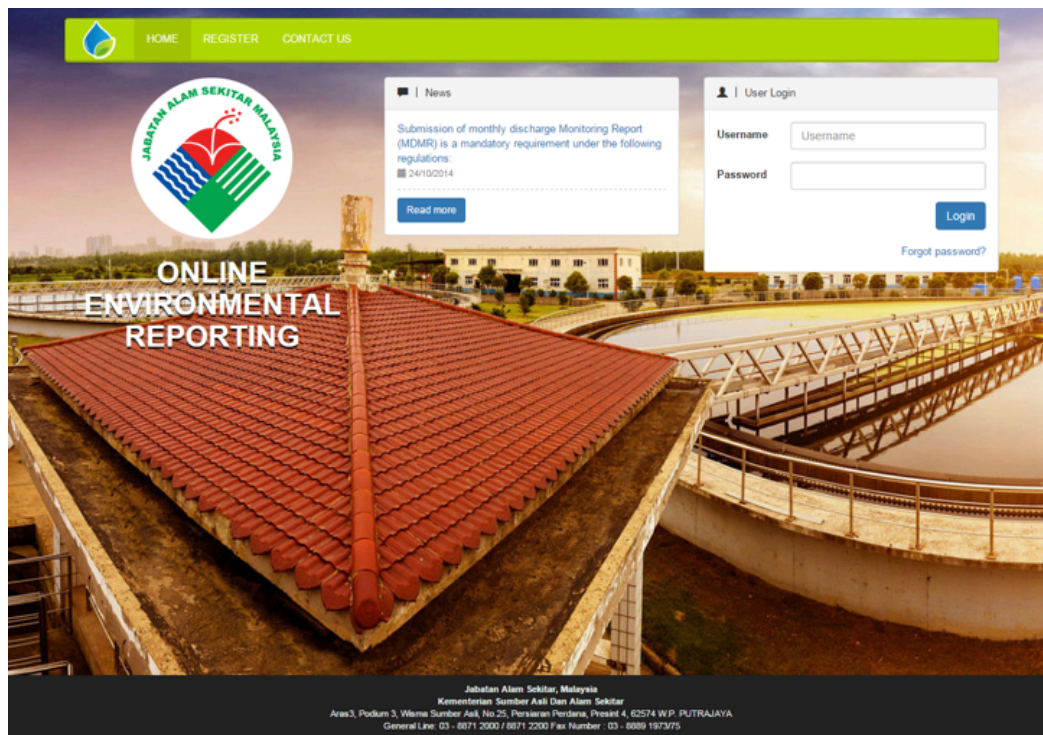
To further improve the implementation of self-regulation in industries, the Information Technology Division (ITD), together with the Enforcement Division, worked together to expand the scope of the existing MDMR System (Monthly Discharge Monitoring Report) through the addition of new modules, namely for the rubber factories, palm oil mills and leachate, as well as in improving the system's current modules, namely the industrial effluent, the sewage and industrial effluent and the sewage and mixed effluent.



Larut Resap, serta menambahbaik modul-modul sedia ada iaitu modul Efluen industri, modul kumbahan dan efluen bercampur.

Selain itu sistem turut ditambahbaik bagi menyediakan sistem yang lebih mesra pengguna. Sistem MDMR yang ditingkatkan ini kemudiannya diberi penjenamaan semula dengan nama baru iaitu Sistem Online Environmental Reporting atau singkatannya OER. Sistem OER yang berwajah baru ini bakal di lancarkan dalam tahun 2015.

Apart from that, the system was further upgraded to be more user-friendly and subsequently will be rebranded as Online Environmental Reporting or in short, OER. The OER system in its new form will be launched in 2015.



Sistem Online Environmental Reporting (OER)  
Online Environmental Reporting System (OER)

## PEMBELIAN DAN PELUPUSAN PERALATAN ICT

Pada tahun 2014, Bahagian Teknologi Malaklumat telah membuat perolehan sejumlah 150 unit computer desktop, 38 unit komputer riba, 26 unit pencetak dan 5 unit tablet PC. Manakala, sejumlah 85 unit computer desktop, 7 unit komputer riba dan 65 unit pencetak telah dilupuskan pada tahun yang sama yang sama.

## PROCUREMENT AND DISPOSAL OF ICT EQUIPMENT

In 2014, the IT Division procured 150 units of desktop computers, 38 units of laptops, 26 units of printers and 5 tablet PCs. Meanwhile, 85 units of desktop computers, 7 units of laptops, and 65 units of printers were written off in the same year.



Jadual 7.1 JAS : Senarai Perolehan Peralatan ICT, 2014  
Table 7.1 DOE : List of Procurement ICT Hardware, 2014

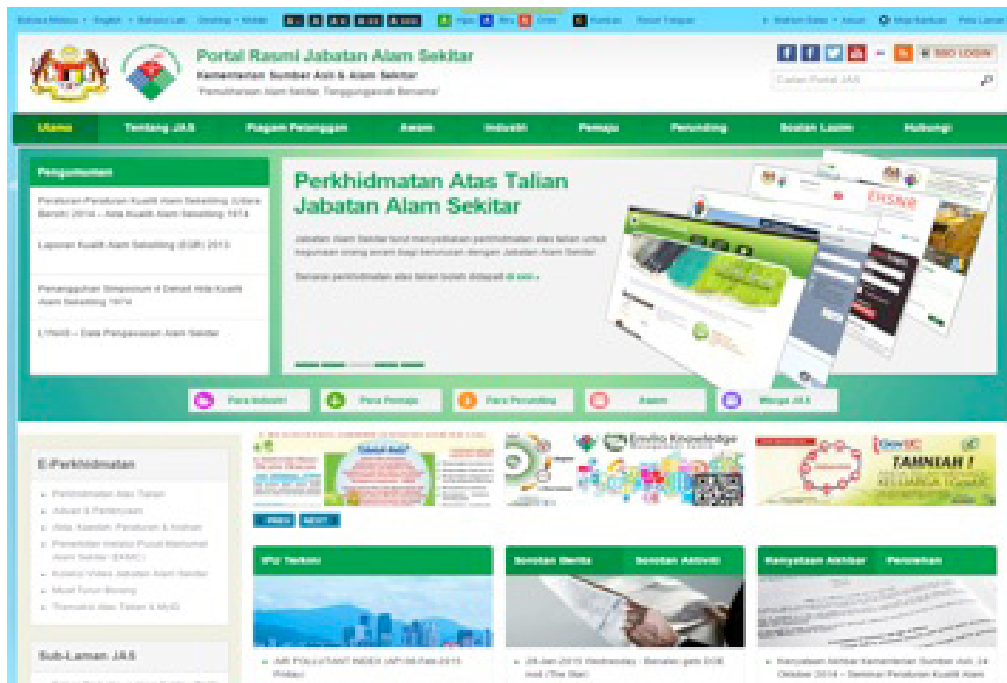
BIL. NO.	PEJABAT JABATAN ALAM SEKITAR DEPARTMENT OF ENVIRENMENT OFFICE	PROJEKTOR PROJECTOR	PROJECTOR HIGH END	KOMPUTER DEKSTOP	KOMPUTER HITAM PUTIH BLACK AND WHITE COMPUTER	KOMPUTER RIBA JENIS 1 LAPTOP TYPE 1	KOMPUTER RIBA JENIS 2 LAPTOP TYPE 2
1.	Ibu Pejabat / Main Office	6	2	12	2	4	4
2.	Johor	5	-	10	1	3	-
3.	Kedah	4	-	11	1	3	-
4.	Kelantan	1	-	10	1	2	-
5.	Melaka	1	1	10	1	2	-
6.	Negeri Sembilan	1	-	10	2	3	-
7.	Pahang	1	-	10	2	2	-
8.	Perak	2	-	11	1	3	-
9.	Perlis	1	-	1	1	-	-
10.	Pulau Pinang	1	-	10	1	2	-
11.	Sabah	2	-	11	2	1	-
12.	Sarawak	3	-	10	1	2	-
13.	Terengganu	2	-	10	2	2	-
14.	Selangor	-	-	10	1	3	-
15.	W.P Labuan	-	-	2	2	1	-
16.	W.P KL	-	-	2	2	2	-
17.	EIMAS	-	-	9	2	1	-
	<b>JUMLAH / TOTAL</b>	30	3	150	25	34	4

**PORTAL JABATAN ALAM SEKITAR**  
<http://www.doe.gov.my/>

Sejajar dengan halatuju kerajaan untuk mempertingkatkan usaha mendekati rakyat, pada tahun 2014, Portal Jabatan Alam Sekitar telah diberi wajah baru dengan harapan ianya lebih mudah dan mesra pengguna.

**DEPARTMENT OF ENVIRONMENT'S PORTAL**  
<http://www.doe.gov.my/>

In line with the Government's effort to reach out to the people, the Department of Environment's Portal was given a fresh facelift in 2014 with the hope that it will be more user-friendly.



Portal Jabatan Alam Sekitar  
Department of Environment's Portal

Rekabentuk Portal JAS yang terbaru ini mempunyai muka depan yang lebih padat dengan maklumat, pautan dan perkhidmatan yang disediakan oleh Jabatan Alam Sekitar seperti himpunan sistem atas talian, perkhidmatan pembayaran atas talian, aduan dan maklumbalas, himpunan video serta keratan akhbar. Portal JAS turut menyediakan pautan ke laman-laman media sosial Jabatan Alam Sekitar seperti YouTube, Facebook dan Twitter yang memudahkan pengunjung untuk mendekati Jabatan Alam Sekitar.

The new design of the DOE's Portal comes with a front page that is replete compact with information, links and services provided by the Department of Environment such as the collection of online systems, online payment service, complaints and feedback, and collections of videos and newspaper cuttings. The DOE's Portal also provides links to social media sites of the Department of Environment, such as YouTube, Facebook and Twitter which helped facilitate visitors in contacting the Department of Environment.

## REKABENTUK BARU LAMAN WEB RAKAN ALAM SEKITAR (RAS)

<http://ras.doe.gov.my/>

Laman web rasmi Rakan Alam Sekitar (RAS) telah diberi wajah baru dengan menampilkan rekabentuk yang lebih ringkas dan menarik serta padat dengan kandungan berinformasi yang diharapkan dapat memberi manfaat kepada para pengunjung laman web yang terdiri daripada warga JAS, ahli RAS, agensi – agensi kerajaan dan badan bukan kerajaan yang ingin mendapatkan maklumat mengenai program – program alam sekitar yang dianjurkan oleh Jabatan Alam Sekitar.

## NEW DESIGN OF RAKAN ALAM SEKITAR (RAS)'S OFFICIAL WEBSITE

<http://ras.doe.gov.my/>

The Rakan Alam Sekitar (RAS)'s official website was given a fresh new façade featuring a much simpler and attractive design. It is more compact with information usefull to all web-users particularly the DOE staff, RAS members, agencies and non-government organizations who desire information about environmental programmes organised by the Department of Environment.



Rekabentuk Baru Laman Web Rasmi Rakan Alam Sekitar  
New Design of Rakan Alam Sekitar's Official Website

## APLIKASI MOBIL INDEKS PENCEMARAN UDARA (MYIPU)

Aplikasi Mobil Indeks Pencemaran Udara yang dikenali sebagai MyIPU dibangunkan untuk memudahkan orang ramai mengakses maklumat indeks pencemaran udara terkini melalui penggunaan telefon bimbit pintar. Penggunaan MyIPU ini memberikan faedah seperti:

- Memudah dan mempercepatkan akses kepada status indeks pencemaran udara.
- Meningkatkan kesedaran orang awam mengenai tahap pencemaran udara dan pencegahan yang perlu dilakukan apabila mengetahui sesuatu status indeks pencemaran udara tersebut.

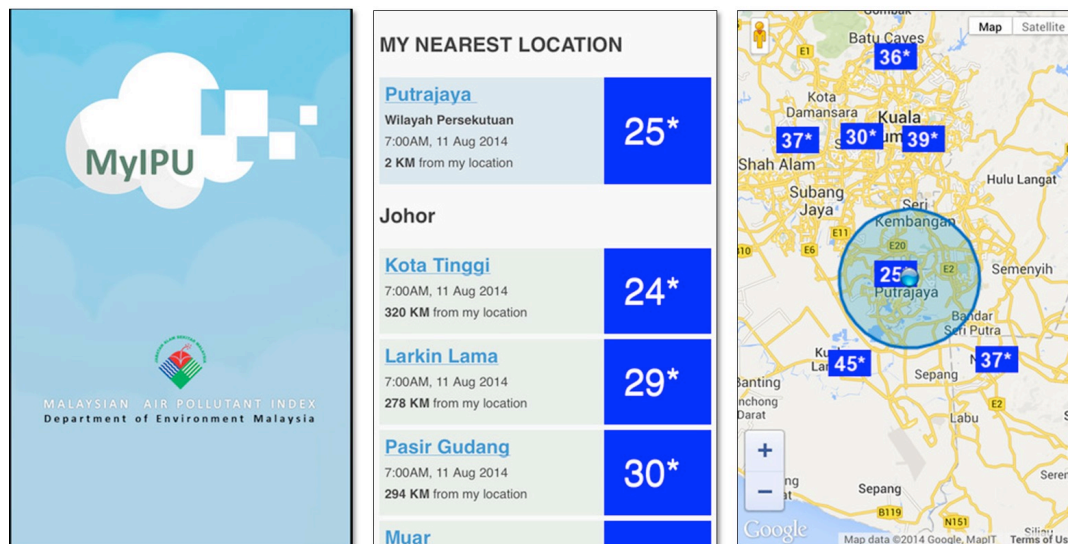
## THE MOBILE APPLICATION OF AIR POLLUTION INDEX ( MYIPU )

The Mobile Application of Air Pollution Index, also known as MyIPU was developed to facilitate public access to the latest air pollution index information through the use of smart mobile phones. Benefits of using MyIPU are as follows:

- To facilitate and accelerate the access to air pollution index status.
- To increase public awareness with regard to air pollution levels and prevention measures to be taken when the status of a pollution index is known.

Orang ramai boleh menggunakan MyIPU dengan memuat turun aplikasi melalui Android Play Store bagi pengguna telefon Android dan Apple Apps Store bagi pengguna iPhone dan Ipad.

To use MyIPU, the public can download the applications through Android Play Store for Android phone users and Apple Apps Store for iPhone and iPad users.



Aplikasi Mobil Indeks Pencemaran Udara (MyIPU)  
Mobile Application of Air Pollution Index (MyIPU)

**KOLEKSI VIDEO JABATAN ALAM SEKITAR**  
<http://www.youtube.com/user/JabatanAlamSekitar>

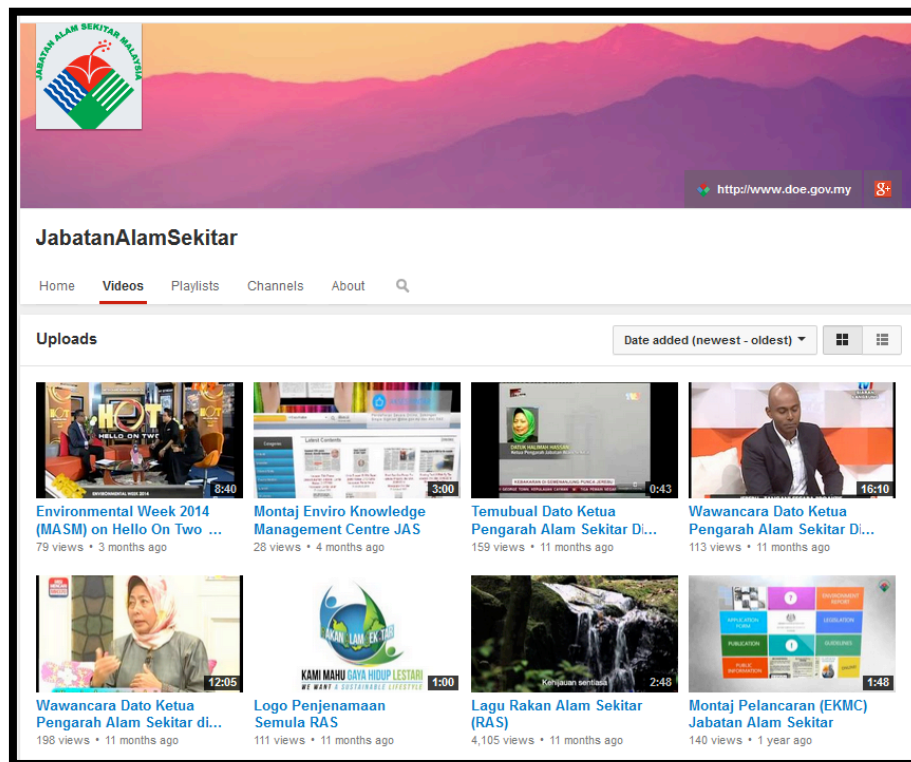
Jabatan Alam Sekitar telah mengumpul sebanyak 84 video yang boleh ditonton oleh orang awam melalui Laman You Tube JAS. Koleksi video yang disumbangkan oleh semua Bahagian/Seksyen/Unit di JAS membantu orang awam untuk mengetahui lebih lanjut mengenai isu-isu alam sekitar.

Pada tahun 2014, koleksi video JAS telah menerima seramai 342,124 orang pelawat. Video paling popular bagi tahun 2014 adalah video "Membuat Bunga Plastik Menggunakan Bahan Kitar Semula" dengan jumlah tontonan sebanyak 1,257.

**DEPARTMENT OF ENVIRONMENT'S VIDEO COLLECTION**  
<http://www.youtube.com/user/JabatanAlamSekitar>

The Department of Environment has collected a total of 84 videos which can be viewed by the public through the department's You Tube page. These video collection which were collected by all the Divisions/Sections/Units of the DOE helps the public to know more about environmental issues.

In 2014, the DOEs You-Tube page received a total of 342,124 visitors. The video entitled "Making Plastic Flowers Using Recycled Materials" was the most popular video of 2014 with a total of 1,257 viewers.



Siaran Youtube Jabatan Alam Sekitar  
Department of Environment's YouTube Channel

## SISTEM MAKLUMAT GEOGRAFI ALAM SEKITAR (SMGAS)

Seksyen GIS telah melaksanakan program serta aktiviti pembangunan GIS menerusi peruntukan Pembangunan Sistem Maklumat Geografi (SMGAS) di bawah Rancangan Malaysia Ke-Sepuluh (2011-2015). Pada tahun 2014, Seksyen GIS telah berjaya melaksanakan program pembangunan seperti berikut:

- Pembangunan Sumber Manusia;
- Pembangunan Data dan Aplikasi; dan
- Pembangunan Infrastruktur.

### PEMBANGUNAN SUMBER MANUSIA

Pada tahun 2014 juga, sebanyak 18 sesi latihan hands on GIS telah dijalankan. setiap JAS Negeri terlibat dalam latihan tersebut. Latihan ini bertujuan bagi memberi latihan dan pendedahan mengenai penggunaan aplikasi GIS yang telah ditambahbaik untuk digunakan semua pegawai JAS.

## ENVIRONMENTAL GEOGRAPHIC INFORMATION SYSTEM (SMGAS)

The GIS Section implements programmes and development activities through funds provided by the Development of Geographical Information System (SMGAS) under the Tenth Malaysia Plan (2011-2015). In 2014, the GIS Section successfully completed development programmes as follows:

- Human Resource Development;
- Data and Application Development; and
- Infrastructure Development.

### HUMAN RESOURCE DEVELOPMENT

In 2014, a total of 18 sessions of Hands-On GIS training programmes were carried out. State DOEs were involved. The aim of these programmes was to provide training and exposure on the use of the upgraded GIS applications to all DOE officers.

Tambahan lagi, 3 kursus sesi GIS iaitu Modul Asas, Pertengahan dan Lanjutan turut dilaksanakan dengan kerjasama Institut Alam Sekitar (EIMAS).

Selain itu dua (2) siri bengkel serta satu (1) mesyuarat telah diadakan bagi memastikan penyelarasan pembangunan dan penggunaan GIS dapat dilaksanakan di setiap JAS Negeri dan Bahagian.

In collaboration with the Environment Institute of Malaysia (EIMAS), an additional 3 sessions of GIS namely Basic, Intermediate and Advanced modules were also implemented.

Beside that, another two (2) series of workshops as well as one (1) meeting were held to ensure the smooth coordination of the development and use of GIS as it is implemented all over State DOEs and Divisions.



Program Latihan Hands On GIS ke 15 pejabat JAS Negeri  
Hands On GIS Training Programme to 15 DOE's State Office

## PEMBANGUNAN INFRASTRUKTUR

Pada tahun 2014, sejumlah 95 unit rugged tablet telah diperolehi dan diedarkan kepada setiap JAS Negeri dan Cawangan bagi tujuan penggunaan di lapangan. Menerusi Aplikasi Mobile GIS yang telah dilengkapkan kedalam peralatan ini, ia dapat meningkatkan tahap keberkesanan pegawai JAS dalam penguatkuasaan Akta Kualiti Alam Sekeliling, 1974.

Selain itu, Seksyen GIS turut membuat pembaharuan lesen ArcGIS For Server di JAS Ibu Pejabat bagi memastikan kelancaran Aplikasi GIS dalam Portal GIS, serta membuat perolehan 22 unit notebook GIS bagi diedarkan ke setiap JAS Negeri bagi melengkapkan aset GIS di JAS Negeri.

## INFRASTRUCTURE DEVELOPMENT

In 2014, a total of 95 units of rugged tablets were procured and distributed to every DOE State office and branch for field investigations. Through the Mobile GIS Applications that have been installed in these devices, the effectiveness of DOE officials in enforcing the EQA, 1974 was further enhanced.

In addition, the GIS Section also conduct renewal of ArcGIS For Server licenses at DOE Headquarters to ensure the smooth application of GIS in the GIS Portal. It also procured 22 units of GIS notebooks which were distributed to every State DOE to complement the GIS assets in State DOEs.



Perolehan Rugged Mobile GIS bagi kegunaan pegawai JAS di lapangan  
Procurement of Rugged Mobile GIS for use of DOE's officers in field exercise

## PEMBANGUNAN DATA & APLIKASI

Pada tahun 2014, Aplikasi GIS dalam Portal GIS JAS kini boleh diakses menggunakan telefon pintar OS Android. Aplikasi yang dinamakan MyEnviroGIS merupakan satu lagi platform bagi pegawai JAS dalam menggunakan maklumat geospasial melalui penggunaan aplikasi mobile. MyEnviroGIS direka compact bagi memaparkan maklumat geospasial seperti yang dilihat dalam Aplikasi GIS - Modul Umum. Salah satu ciri penting adalah MyEnviroGIS direka bagi mengesan kedudukan lokasi pengguna sekira GPS diaktifkan pada telefon pintar ketika dilapangan. Aplikasi MyEnviroGIS boleh dimuat turun oleh pegawai JAS daripada laman Portal GIS JAS.

Pengumpulan data spasial dilaksanakan secara berterusan di JAS. Sumber maklumat spasial utama JAS adalah dari Sistem Elektronik Kawalan Alam Sekitar (E-KAS). Semua maklumat spasial ini telah dikemaskini dalam aplikasi GIS didalam Portal GIS. Pada tahun 2014, fokus pemetaan spasial punca pencemaran alam sekitar menerusi Program Pollution Sources Survey (PSS) telah berjaya dilaksanakan bagi 61 buah lembangan yang merupakan kawasan sumber bekalan air di Malaysia. Pendekatan ini adalah sebagai satu langkah pencegahan awal ke arah pendekatan 'pengesanan sebelum aduan pencemaran' dan juga dapat membantu merealisasikan penguatkuasaan AKAS 1974 yang lebih berkesan dan bermakna.

## DATA & APPLICATIONS DEVELOPMENT

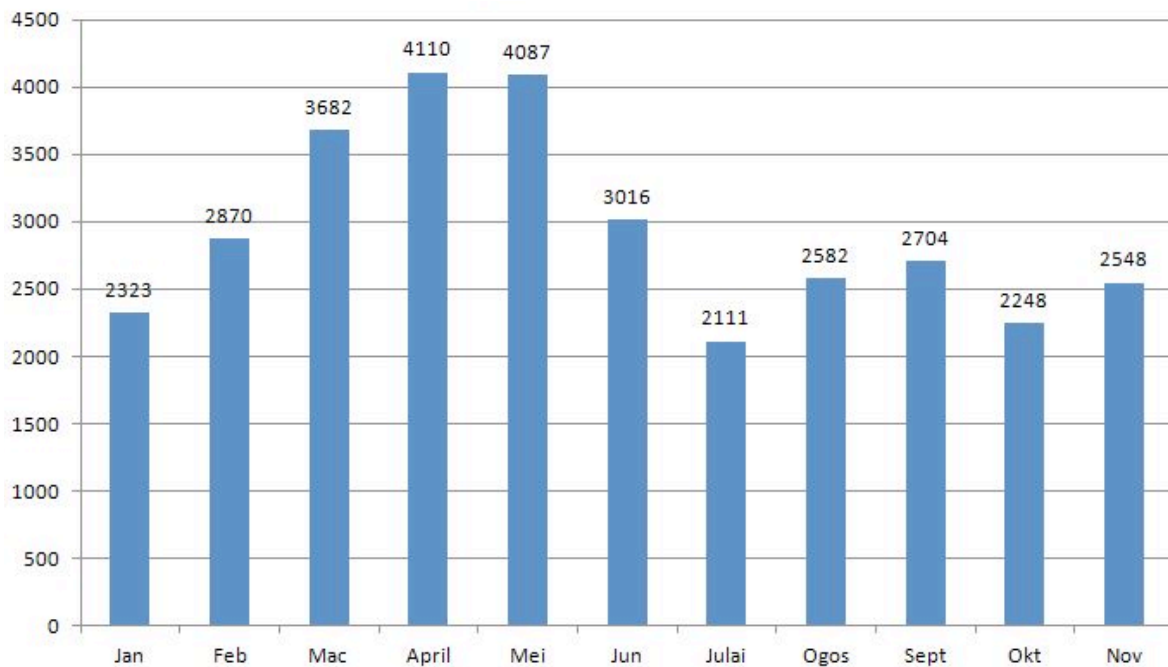
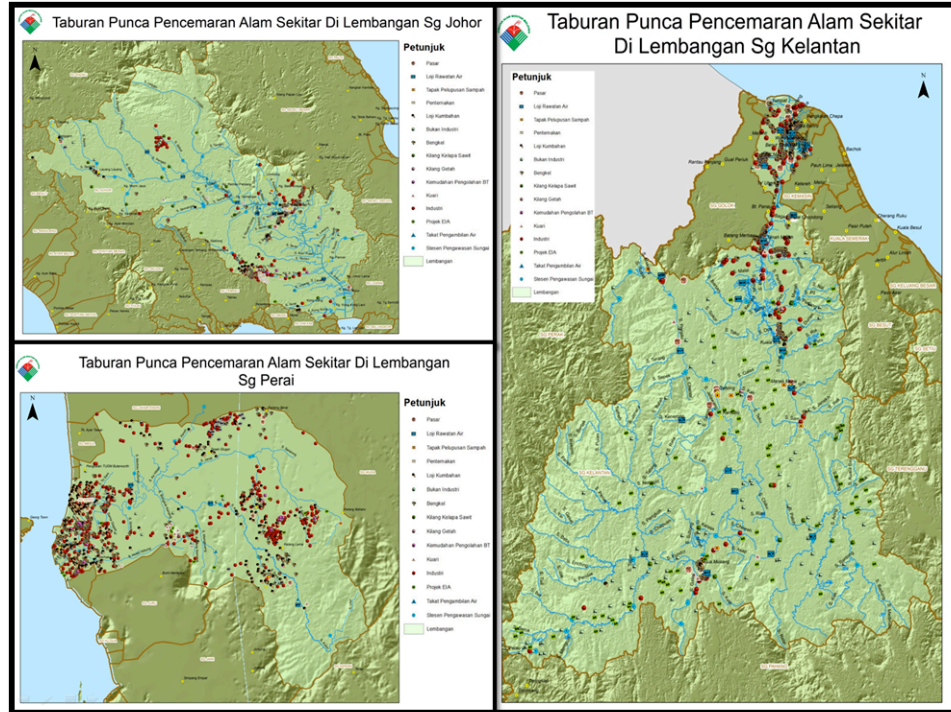
In 2014, the GIS Application in the GIS Portal can now be accessed using an Android OS smartphone. The Application named MyEnviroGIS is another platform for DOE officials to utilize geospatial information through the use of mobile applications. MyEnviroGIS was designed in a compact manner to display geospatial information as seen in the General Module of a GIS Application. One important feature of MyEnviroGIS is it is designed to detect the location of the user once the GPS is enabled on the smartphone while the user is in the field. MyEnviroGIS application can be downloaded by DOE officers from DOE GIS Portal.

Spatial data collection has been implemented continuously in the DOE. DOE major source of spatial information is from Sistem Elektronik Kawalan Alam Sekitar (E-KAS). All spatial information has been updated in the application of GIS in the GIS Portal. In 2014, the focus of spatial mapping of environmental pollution through the Pollution Sources Program Survey (PSS) has been successfully implemented for 61 basins which are sources of water supply in Malaysia. This approach as a nearly preventive measure towards a 'detection before pollution complaint' and can also help realize the achievement of enforcement more effective and meaningful.

Portal GIS JAS menjadi platform utama dalam menyediakan maklumat geospasial kepada pegawai-pegawai JAS dalam menjalankan penguatkuasaan Akta Kualiti Alam Sekeliling 1974. Statistik di bawah menunjukkan tahap penggunaan Portal GIS JAS yang direkodkan bagi tahun 2014.

DOE GIS Portal is the main platform for geospatial information used by DOE officers in enforcing EQA 1974. Below is the statistic showing usage of GIS Portal for the year 2014.

Pemetaan spatial punca pencemaran alam sekitar mengikut lembangan yang telah berjaya dilengkapkan  
 Completed spatial mapping of pollution sources by basin



Rajah 7.1 JAS :Statistik Penggunaan Portal GIS JAS bagi tahun 2014  
 Figure 7.1 DOE : Statistic of DOE GIS Portal Usage Year 2014

## PROGRAM LATIHAN ICT

Pada tahun 2014, Bahagian Teknologi Maklumat dengan kerjasama EIMAS telah menganjurkan sebanyak 26 program latihan ICT, termasuklah kursus, bengkel dan taklimat ICT sebagai sebahagian daripada usaha untuk meningkatkan kefahaman, pengetahuan dan kemahiran ICT di kalangan kakitangan JAS. Program latihan tersebut ialah:

- i. Kursus Train The Trainers : CEMS & MyMesyuarat
- ii. Program Pementapanan ICT
- iii. Kursus Penyelenggaraan Komputer
- iv. Kursus Train The Trainers : ESWIS
- v. Kursus Microsoft Office 2010 (Tahap Pertengahan)
- vi. Mesyuarat Dan Bengkel Peningkatan Sistem ECN
- vii. Mesyuarat Dan Bengkel Peningkatan Sistem EKAS
- viii. Latihan Pentadbir Sistem OER
- ix. Latihan Pentadbir Sistem GHG
- x. Latihan Pentadbir Dan Pengguna Sistem ESWIS
- xi. Latihan Pentadbir EKMC
- xii. Kursus Pembangunan Aplikasi Menggunakan PHP & MySQL (Tahap Asas- Lanjutan)
- xiii. Kursus Mobile Hybrid Application
- xiv. Latihan Pentadbir PIWIK Web Analytics
- xv. Memasang Dan Mengkonfigurasi Klien Windows 7
- xvi. Penyelesaian Dan Sokongan Windows 7 Dalam Enterprise
- xvii. Kursus GIS I
- xviii. Kursus GIS III Sesi 1
- xix. Kursus GIS III Sesi 2
- xx. Mesyuarat Penyelaras GIS Negeri bagi Program Hands On GIS 2014
- xxi. Taklimat & Bengkel Mobile GIS
- xxii. Simposium NGIS6
- xxiii. Bengkel Persediaan GIS Hands-on
- xxiv. Persidangan Pengguna ESRI
- xxv. Programe JAS Negeri GIS Hands-on
- xxvi. Bengkel dan Mesyuarat Penyerasan GIS

## ICT TRAINING PROGRAMMES

In 2014, the Information Technology Division in collaboration with EIMAS has organized a total of 26 ICT training program, including courses, workshops and talks in its effort to increase the understanding, knowledge and skills in ICT among DOE staff. The training programmes are as follows:

- i. Train The Trainers Course : CEMS And MyMesyuarat
- ii. ICT Enhancement Programme
- iii. Computer Maintenance Course
- iv. Train The Trainers Course : ESWIS
- v. Microsoft Office 2010 Course (Intermediate Level)
- vi. ECN System Upgrade Meeting And Workshop
- vii. EKAS System Upgrade Meeting And Workshop
- viii. OER System Administrator Training
- ix. GHG System Administrator Training
- x. ESWIS System Administrator And User Training
- xi. EKMC Administrator Training
- xii. Application Development Using PHP & MySQL Course (Basic – Advanced Level)
- xiii. Mobile Hybrid Application Course
- xiv. PIWIK Web Analytics Administrator Training
- xv. Installing and Configuring Windows 7 Client
- xvi. Troubleshooting And Supporting Windows 7 In The Enterprise
- xvii. GIS I Course
- xviii. GIS III Course Session 1
- xix. GIS III Course Session 2
- xx. GIS Inter State Coordination Meeting For GIS Hands-on Programme 2014
- xxi. Mobile GIS Briefing And Workshop
- xxii. NGIS6 Symposium
- xxiii. GIS Hands-on Preparation Workshop
- xxiv. ESRI User Conference
- xxv. DOE State GIS Hands-on Programme
- xxvi. GIS Coordination Workshop & Meeting

