26 Sept 2018 (Rabu)

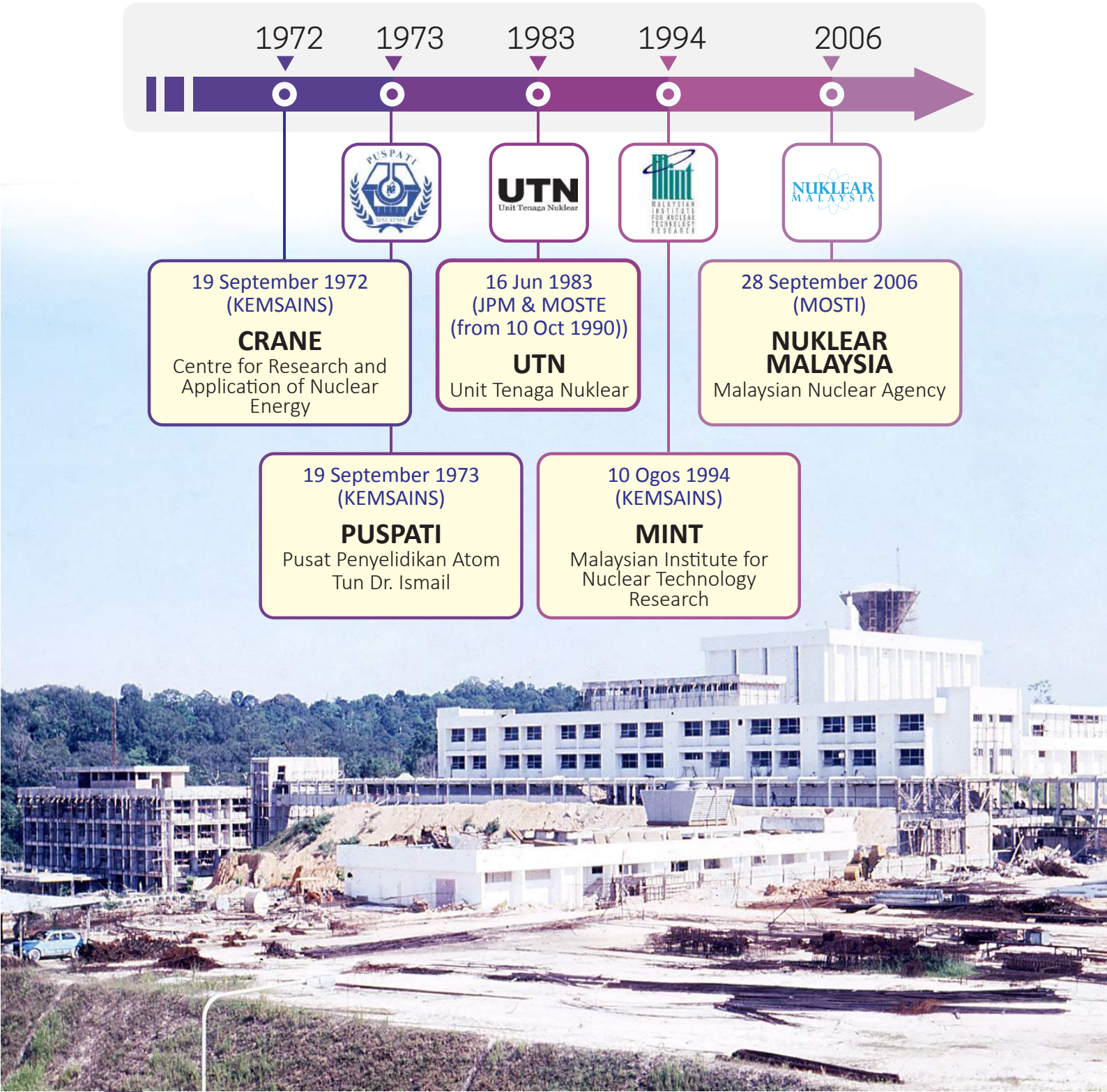
8.30 pagi - 1.30 petang

HARI PENGURUSAN PENGETAHUAN (KM) 2018

Dewan Tun Dr. Ismail

NUKLEAR MALAYSIA

ISI KANDUNGAN



PRAKATA

Assalamualaikum w.b.t. dan salam sejahtera.

Pertama dan utamanya, saya mengucapkan syabas dan tahniah kepada pihak urusetia yang telah bertungkus lumus dalam menjayakan Hari KM 2018.

Pengurusan Pengetahuan (KM) merupakan nadi kepada kelancaran operasi di Agensi Nuklear Malaysia. Proses-proses yang melibatkan pelbagai bahagian terutamanya Bahagian Pengurusan Maklumat dan dibantu oleh Bahagian Pembangunan Sumber Manusia dan Bahagian Sokongan Teknikal yang bersama-sama menggembleng tenaga bagi memastikan pengetahuan kritikal di Nuklear Malaysia ini tidak hilang, amatlah wajar diperkukuhkan dari masa ke semasa. Tidak ketinggalan juga peranan dan usaha berterusan bahagian lain yang turut menyumbang kepada kelestarian pengetahuan di agensi ini.

Umum mengetahui, pengetahuan merupakan antara aset asas dan terpenting bagi organisasi penyelidikan seperti Agensi Nuklear Malaysia. Justeru itu, pelbagai usaha telah dirancang dan dilaksanakan untuk memastikan pengetahuan nuklear yang sedia ada dapat dipelihara sebaik mungkin, bagi memastikan generasi yang mendatang masih mampu menatap dan sebarang masalah operasi dapat dielakkan.

Hari KM 2018 merupakan satu usaha yang baik oleh pihak Jawatankuasa Kerja KM dalam usaha mereka mencapai objektif tersebut. Ia bertindak sebagai platform bagi menterjemah dan membudayakan pengetahuan di agensi ini. Dengan tema "***Now everyone can share***", adalah diharapkan semoga usaha ini dirahmati dan dipermudahkan urusannya di masa hadapan.

E-Book Hari KM 2018 ini diharap dapat menjadi *"memento"* atau rekod bukti penyertaan aktif dan sambutan warga Nuklear Malaysia terhadap Hari KM 2018. Dengan koleksi poster yang dipertandingkan dan maklumat berkenaan, ia diharap terus berada dalam lipatan sejarah Agensi Nuklear Malaysia dan menjadi rujukan mereka di masa hadapan.

Akhir kata, saya berbangga dengan pencapaian semua warga Nuklear Malaysia yang telah mengambil bahagian di dalam acara-acara yang dipertandingkan semasa Hari KM 2018 berlangsung. Semoga usaha ini dapat diteruskan lagi di masa hadapan dengan penyertaan yang lebih ramai serta pengisian yang lebih mantap.

Sekian, terima kasih.

KETUA PENGARAH
Dr. Mohd. Abd. Wahab B. Yusof

PENDAHULUAN HARI KM

PENDAHULUAN

Pengurusan Pengetahuan (KM) merupakan tulang belakang kepada proses operasi yang lancar bagi sesebuah organisasi. Pengurusan Pengetahuan Nuklear (NKM) merupakan satu proses integrasi dan bersistematik yang melibatkan semua peringkat di dalam kitaran pengetahuan nuklear. Ia memberi impak yang besar pada sumber manusia, ICT dan proses/sistem pengurusan dokumen. Antara aktiviti yang terlibat dalam proses NKM adalah pengumpulan maklumat melalui temuramah, sesi ceramah, pementoran, penyimpanan maklumat dan penyebaran maklumat.

LATAR BELAKANG

Penganjuran Hari KM merupakan satu usaha berterusanAgensi Nuklear Malaysia dalam memantapkan amalan pengurusan pengetahuan di agensi ini. Menerusi Hari KM yang diadakan setiap dua tahun, warga Agensi Nuklear Malaysia berpeluang untuk membudayakan pengurusan pengetahuan melalui pelbagai platform perkongsian sepanjang program berlangsung seperti ceramah KM, poster KM, kuiz KM, Sharepoint KM (SP-KMS) dan perkongsian amalan terbaik.

TEMA : *Now Everyone Can Share*

OBJEKTIF

Objektif utama seminar ini diadakan adalah seperti berikut:

- Memberi penghargaan kepada penglibatan semua bahagian di Agensi Nuklear Malaysia bagi
- Mewujudkan suasana persaingan sihat & keterujaan setiap bahagian yang menyertai
- Menyatakan sokongan berterusan pihak pengurusan atasan terhadap program dan aktiviti KM di Agensi Nuklear Malaysia.

PERLAKSANAAN

Hari KM 2018 telah dilaksanakan dengan merangkumi beberapa aktiviti iaitu:

- Perkongsian amalan KM JKR
- Pertandingan Poster KM
- Kuiz KM
- Pertandingan Sharepoint KM (SP-KMS)
- Perkongsian amalan terbaik

BARISAN AJK

PENAUNG & PENASIHAT

KETUA PENGARAH
Dr. Mohd. Abd. Wahab B. Yusof

KETUA PEGAWAI PENGETAHUAN (CKO)
Dr. Wan Saffiey B. Wan Abdullah

PENGERUSI BERSAMA
Cik Habibah Bt. Adnan

JAWATANKUASA PELAKSANA

Pengerusi
En Anwar B. Abdul Rahman

Setiausaha
Dr. Julie Andrianny Bt. Murshidi

Protokol & Jemputan
En. Nasaai B. Masngut
YM Raja Musfarizal Bt. Raja Muhamad

Teknikal & Logistik
Pn. Siti Nurbahyah Bt. Hamdan
En. Mohd. Hafizal B. Yusof
Pn. Mazlipah Bt. Mohamed Ramlan

Program & Cenderahati
Pn. Khomsaton Bt. Abu Bakar
Pn. Maznah Bt. Mahmud

Jamuan & Publisiti
Pn. Ruzalina Bt. Baharin
Pn. Norzehan Bt. Ngadiron

Pameran & *Sharepoint Battle*
Pn. Norhayati Bt. Abdullah
Pn. Rudarul Morhaya Bt. Ismail
Pn. Robiatul Adawiyah Bt. Ahmad Tajuddin
En. Halit B. Alias

AJK Rapporteur
Pn. Norzehan Bt. Ngadiron

AGENDA PROGRAM

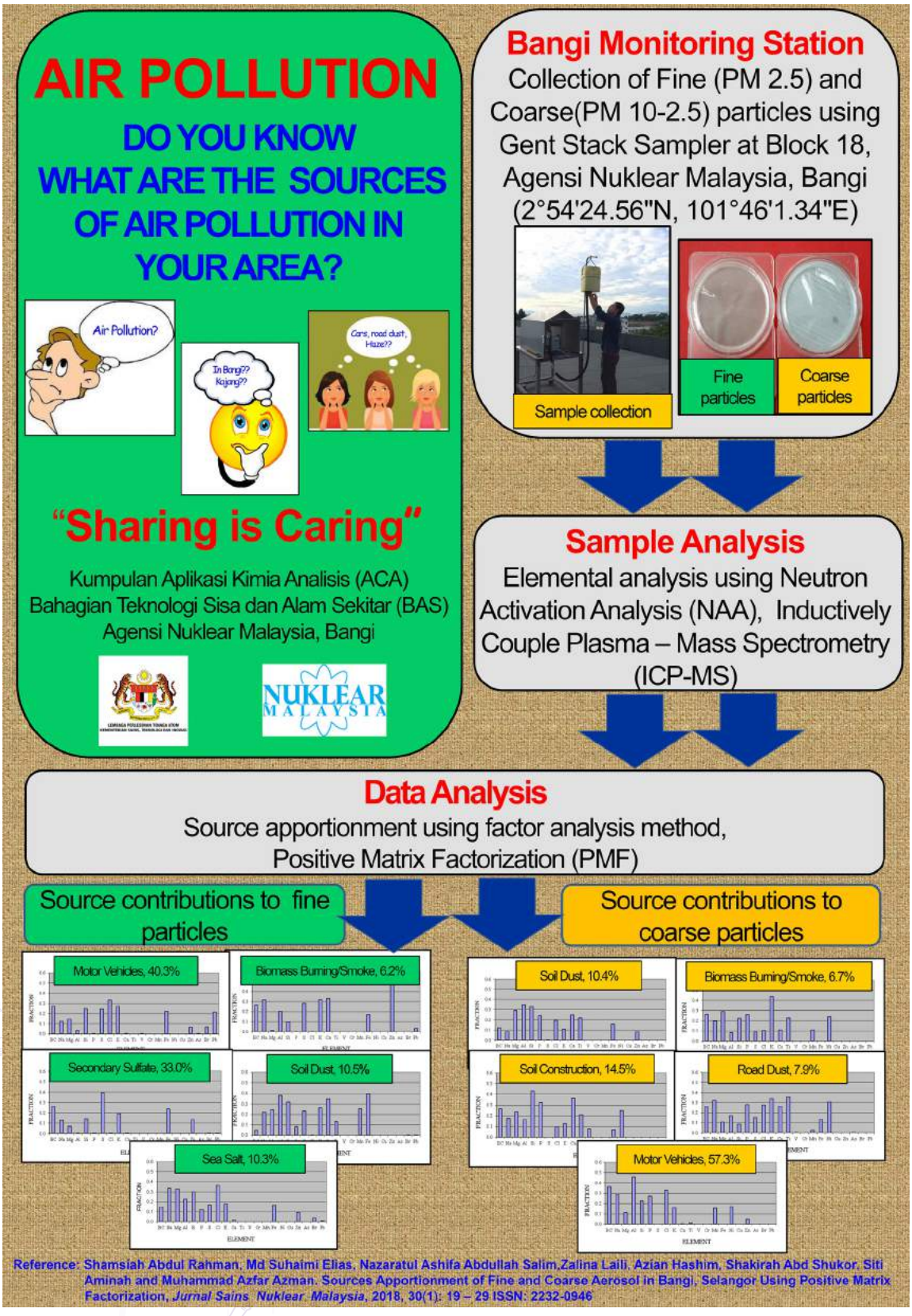
MASA	AKTIVITI
8.00 pagi	Pendaftaran Peserta
9.00 pagi	Bacaan Doa Ucapan Aluan: Pengerusi Hari KM Ucapan Perasmian: Dr. Mohd. Abd. Wahab B. Yusof Tayangan Montaj
9.15 pagi	Lawatan ke poster (VIP) Pop Kuiz dan Cabutan Bertuah (peserta)
9.30 pagi	Slot ceramah: KM di Jabatan Kerja Raya (JKR) Sr. Hjh. Roznita Bt. Othman
11.30 pagi	*Sharepoint Battle*
12.30 petang	Penyampaian Hadiah & Penutup
1.00 petang	Makan tengahari & bersurai

POSTER KM

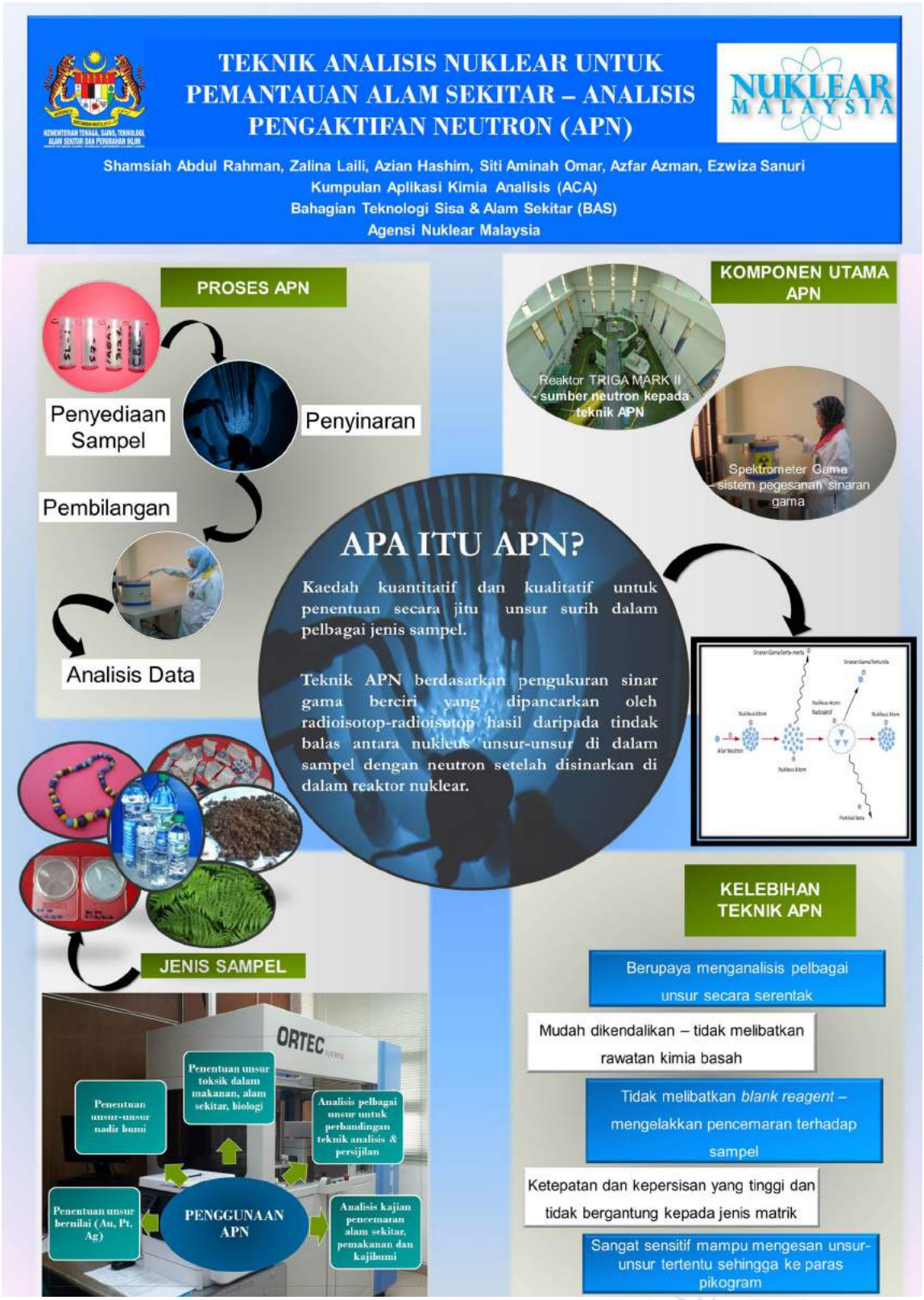
BAS

Penggunaan Teknologi Nuklear (Teknik Isotop)
di dalam Pengurusan Sumber Air dan Hidrologi


EVERYONE CAN SHARE !
NEW DEVELOPED RADIOCHEMICAL ANALYSIS TECHNIQUE
BOOK
Radiochemical Cook Book
Marine Book
PROCEDURE
Procedure Radiochemical Analysis For Alpha Emitters
Procedure Radioanalytical of Sr-90
CONFERENCE SEMINAR
R & D
NTC
Local & Oversea Conference
IN-HOUSE TRAINING
PGEC
Practical Students
RAS's Staff In-House Training
VISITOR
School Students
Goverment Officials
Private Company
Universities
VIDEO
Corporate Video
Share Point
Share Folder
EXHIBITION
Innovation Day
Information Poster
NICE
BAHAGIAN TEKNOLOGI SISA & ALAM SEKITAR (BAS)
MAKMAL RADIOKIMIA & ALAM SEKITAR (RAS)
NUKLEAR MALAYSIA



Reference: Shamsiah Abdul Rahman, Md Suhaimi Elias, Nazaratul Ashifa Abdullah Salim,Zalina Laili, Azian Hashim, Shakirah Abd Shukor, Siti Aminah and Muhammad Azfar Azman. Sources Apportionment of Fine and Coarse Aerosol in Bangi, Selangor Using Positive Matrix Factorization, *Jurnal Sains Nuklear Malaysia*, 2018, 30(1): 19 – 29 ISSN: 2232-0946


TEKNIK ANALISIS NUKLEAR UNTUK PEMANTAUAN ALAM SEKITAR – ANALISIS PENGAKTIFAN NEUTRON (APN)
NUKLEAR MALAYSIA
Shamsiah Abdul Rahman, Zalina Laili, Azian Hashim, Siti Aminah Omar, Azfar Azman, Ezwiza Sanuri
Kumpulan Aplikasi Kimia Analisis (ACA)
Bahagian Teknologi Sisa & Alam Sekitar (BAS)
Agensi Nuklear Malaysia
PROSES APN
Penyediaan Sampel
Penyinaran
Pembilangan
Analisis Data
KOMPONEN UTAMA APN
Reaktor TRIGA MARK II - sumber neutron kepada teknik APN
Spektrometer Gama - sistem pegesanan sinaran gama
APA ITU APN?
Kaedah kuantitatif dan kualitatif untuk penentuan secara jitu unsur surih dalam pelbagai jenis sampel.
Teknik APN berdasarkan pengukuran sinar gama berciri yang dipancarkan oleh radioisotop-radioisotop hasil daripada tindak balas antara nukleus unsur-unsur di dalam sampel dengan neutron setelah disinarkan di dalam reaktor nuklear.
JENIS SAMPEL
ORTEC
Penentuan unsur-unsur nadir bumi
Penentuan unsur toksik dalam makanan, alam sekitar, biologi
Analisis pelbagai unsur untuk perbandingan teknik analisis & persijilan
Penentuan unsur bernilai (Au, Pt, Ag)
PENGGUNAAN APN
Analisis kajian pencemaran alam sekitar, pemakanan dan kajibumi
KELEBIHAN TEKNIK APN
Berupaya menganalisis pelbagai unsur secara serentak
Mudah dikendalikan – tidak melibatkan rawatan kimia basah
Tidak melibatkan blank reagent – mengelakkan pencemaran terhadap sampel
Ketepatan dan kepersisan yang tinggi dan tidak bergantung kepada jenis matrik
Sangat sensitif mampu mengesan unsur-unsur tertentu sehingga ke paras pikogram

Program Outreach Bersama OKU

PROGRAM OUTREACH BERSAMA OKU (MSI 17111 Nuclear BFF): Wadah Perkongsian Pengetahuan S&T Nuklear

Objektif

i. Menghasilkan kaedah terbaik dan praktikal yang mesra OKU sebagai satu *tool* untuk memberi pendedahan awal kepada golongan OKU (bisu, pekak, buta dan masalah pembelajaran)
ii. Memberi maklumat sama rata kepada golongan OKU berkaitan Sains & Teknologi Nuklear
iii. Merealisasikan matlamat "pendidikan sama rata untuk semua"

Anjuran: Agensi Nuklear Malaysia di bawah MESTECC dengan kerjasama Yayasan Inovasi Malaysia & Yayasan Pendidikan Al-Quran bagi Anak Istimewa (Yayasan FAQEH)

Tempoh: Mac hingga Ogos 2018

Lokasi: Organisasi/peserta OKU yang terpilih di sekitar N.Sembilan, W.P Putrajaya dan Lembah Klang

Metadologi Projek

Pemilihan peserta

a.Peserta yang dipilih terdiri di kalangan OKU dengan kecacatan seperti di bawah
i. Bisu ii. Pekak iii. Buta iv. Masalah pembelajaran

Persekitaraan pembelajaran mesra OKU

a.Berdasarkan kajian oleh pelajar Universiti Malaya, bagi membolehkan golongan OKU lebih fokus kepada modul pengajaran yang **telah** direka khas dan mesra OKU, mereka akan dibawa dengan kenderaan bergerak dari satu lokasi ke satu lokasi yang lain sehingga modul ceramah/pengajaran selesai.
b.Mereka akan berhenti di beberapa check point (masjid, taman rekreasi dan sebagainya) untuk mengembalikan tenaga, fokus dan semangat mereka.
c.Pada setiap check point, mereka akan di bimbing oleh fasililtator sama ada melakukan senaman ringkas, solat sunat atau brain-game berasaskan Sains & Teknologi Nuklear yang sesuai.
d.Pakar Nuklear yang di lantik (dari Agensi Nuklear Malaysia, MESTECC) dengan dibantu oleh seorang Daie Pekak (dari Yayasan Faqeh) dan guru pengiring akan mengendalikan kelas yang mempunyai 4-6 orang pelajar istimewa sahaja.
e.Dijangkakan, untuk setiap sesi akan memakan masa selama 4 jam bermula dari jam 9 pagi dan berakhir dengan solat Zohor secara berjemaah di masjid.

Bahan modul pengajaran mesra OKU

a.Modul khusus mengenai Sains & Teknologi Nuklear mesra OKU akan dibangunkan dalam bentuk digital atau modul multimedia.
b.Modul akan dilengkapi dengan bahan-bahan/sumber maklumat yang telah dibincang bersama di antara pakar nuklear, Bahagian Pengurusan Maklumat dan pihak Yayasan Faqeh.
c.Fasilitator yang terdiri dari pakar nuklear dijemput khas dengan dibantu oleh penterjemah juga akan menerangkan dengan lebih terperinci sekiranya terdapat soalan dari para peserta

Jangkaan Output Projek

- Multimedia Module penyebaran Sains & Teknologi Nuklear serta keselamatan radiasi mesra OKU.
- 10 orang penterjemah rintis OKU akan dilatih untuk menjadi penyampai mengenai Sains & Teknologi Nuklear kepada golongan OKU. (Train the trainers)
- 40 orang penyelia OKU dari organisasi yang dipilih akan turut didedahkan dengan Sains & Teknologi Nuklear.
- 160 orang OKU akan menjadi perintis dan penerima ilmu berkaitan sains & teknologi nuklear secara langsung dan pengiring-pengiring yang menghantar mereka ke lokasi permulaan program akan menjadi peserta tidak langsung dalam projek ini. Mereka boleh menjadi 'duta' penyebar maklumat secara tidak langsung mengenai teknologi dan aplikasi nuklear kepada masyarakat terutama rakan-rakan mereka dalam kalangan OKU.
- Laporan keberkesanan program.

Kelestarian Projek

- 50 peratus dari jumlah keseluruhan peserta OKU dan pengiring atau penyelia mereka mampu menjadi duta dan jurucakap dalam program-program outreach MOSTI bagi golongan sasaran OKU pada masa akan datang.
- 10 orang penterjemah OKU yang terlatih siap sedia untuk menjadi jurucakap mengenai Sains & Teknologi Nuklear kepada golongan OKU.
- Modul pengajaran Sains & Teknologi Nuklear mesra OKU dihasilkan dan diedarkan kepada NGO berkaitan OKU di bawah Jabatan Kebajikan Masyarakat di seluruh negara untuk menjadi salah satu aktiviti penyebaran ilmu di organisasi tersebut.
- Modul ini juga, boleh disebarluaskan manfaatnya pada masa akan datang apabila adanya kerjasama dengan Jabatan Penerangan (OKU awam) dan Kementerian Pendidikan (Program Pendidikan Khas).

MOSTI SOCIAL INNOVATION

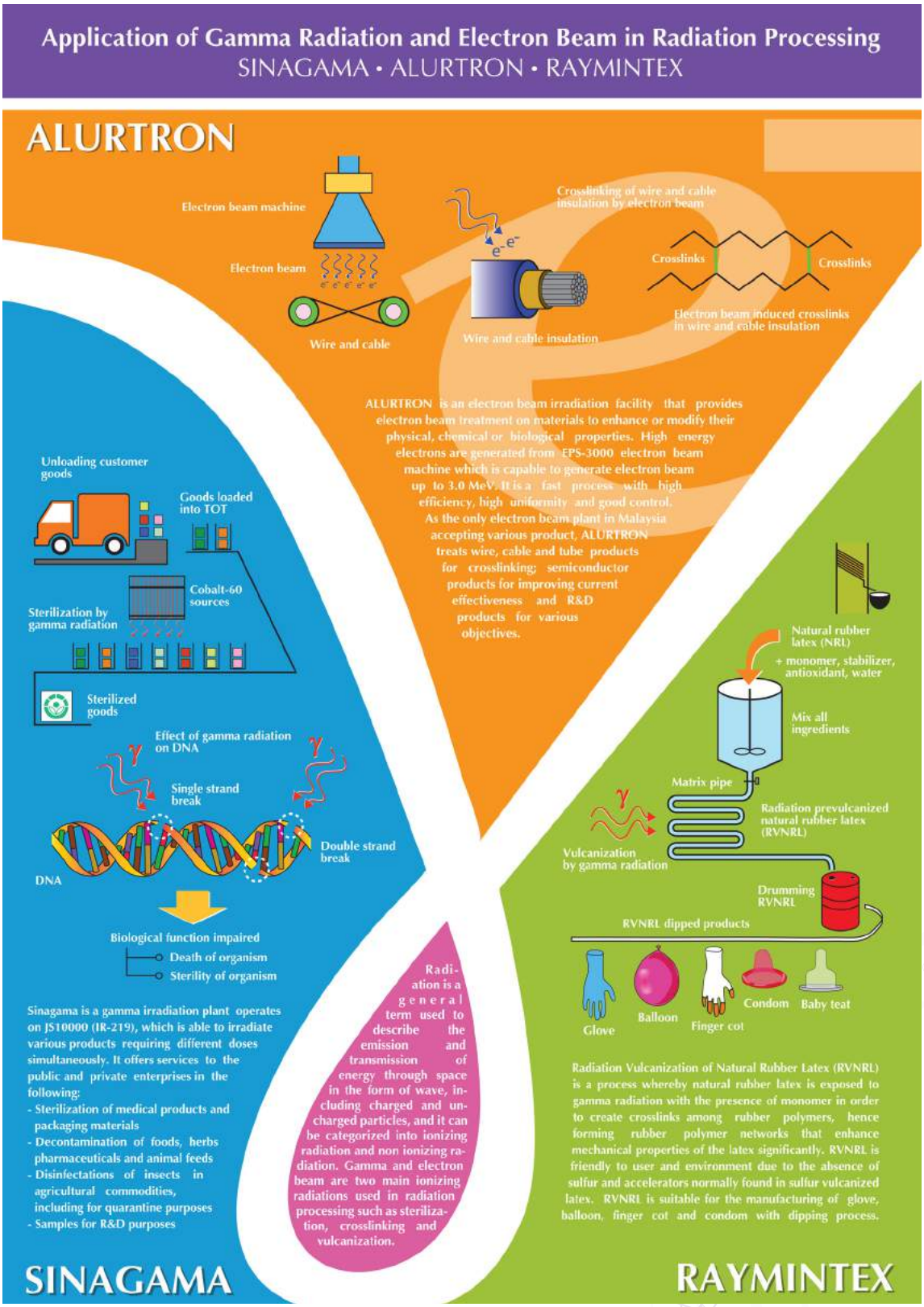
For further information, please contact:

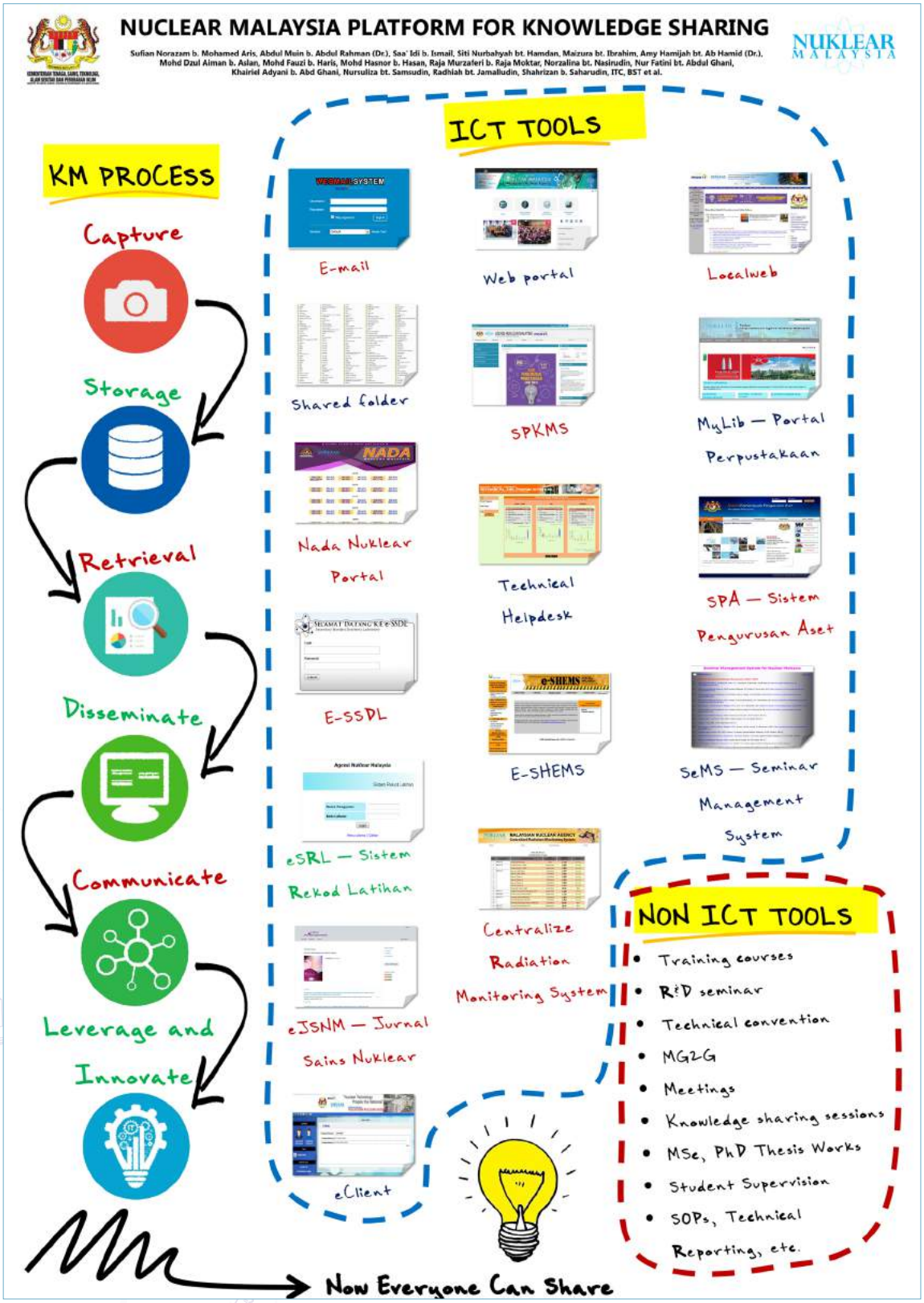
Director General,
Malaysia Nuclear Agency
(Nuclear Malaysia)
BANGI, 43000 KAJANG
SELANGOR

Attn:
Ketua Projek
Bah. Sokongan Teknikal
E-mail: fauziharis@nm.gov.my / hasnor@nm.gov.my

Tel : +603 - 8911 1789
Fax : +603 – 8911 2154

Like nuclearbff


Application of Gamma Radiation and Electron Beam in Radiation Processing
SINAGAMA • ALURTRON • RAYMINTEX
ALURTRON
Electron beam machine
Electron beam
Wire and cable
Crosslinking of wire and cable insulation by electron beam
Wire and cable insulation
Crosslinks
Crosslinks
Electron beam induced crosslinks in wire and cable insulation
ALURTRON is an electron beam irradiation facility that provides electron beam treatment on materials to enhance or modify their physical, chemical or biological properties. High energy electrons are generated from EPS-3000 electron beam machine which is capable to generate electron beam up to 3.0 MeV. It is a fast process with high efficiency, high uniformity and good control. As the only electron beam plant in Malaysia accepting various product, ALURTRON treats wire, cable and tube products for crosslinking; semiconductor products for improving current effectiveness and R&D products for various objectives.
Unloading customer goods
Goods loaded into TOT
Cobalt-60 sources
Sterilization by gamma radiation
Sterilized goods
Effect of gamma radiation on DNA
Single strand break
Double strand break
DNA
Biological function impaired
Death of organism
Sterility of organism
Sinagama is a gamma irradiation plant operates on JS10000 (IR-219), which is able to irradiate various products requiring different doses simultaneously. It offers services to the public and private enterprises in the following:
- Sterilization of medical products and packaging materials
- Decontamination of foods, herbs pharmaceuticals and animal feeds
- Disinfectations of insects in agricultural commodities, including for quarantine purposes
- Samples for R&D purposes
SINAGAMA
Radiation is a general term used to describe the emission and transmission of energy through space in the form of wave, including charged and uncharged particles, and it can be categorized into ionizing radiation and non ionizing radiation. Gamma and electron beam are two main ionizing radiations used in radiation processing such as sterilization, crosslinking and vulcanization.
Natural rubber latex (NRL)
+ monomer, stabilizer, antioxidant, water
Mix all ingredients
Matrix pipe
Radiation prevulcanized natural rubber latex (RVNRL)
Vulcanization by gamma radiation
Drumming RVNRL
RVNRL dipped products
Glove
Balloon
Finger cot
Condom
Baby teat
Radiation Vulcanization of Natural Rubber Latex (RVNRL) is a process whereby natural rubber latex is exposed to gamma radiation with the presence of monomer in order to create crosslinks among rubber polymers, hence forming rubber polymer networks that enhance mechanical properties of the latex significantly. RVNRL is friendly to user and environment due to the absence of sulfur and accelerators normally found in sulfur vulcanized latex. RVNRL is suitable for the manufacturing of glove, balloon, finger cot and condom with dipping process.
RAYMINTEX


NUCLEAR MALAYSIA PLATFORM FOR KNOWLEDGE SHARING
Sufian Norazam b. Mohamed Aris, Abdul Muin b. Abdul Rahman (Dr.), Saa' Idi b. Ismail, Siti Nurbahyah bt. Hamdan, Maizura bt. Ibrahim, Amy Hamijah bt. Ab Hamid (Dr.), Mohd Dzul Aiman b. Aslan, Mohd Fauzi b. Haris, Mohd Hasnor b. Hasan, Raja Murzaferi b. Raja Moktar, Norzalina bt. Nasirudin, Nur Fatini bt. Abdul Ghani, Khairiel Adyani b. Abd Ghani, Nursuliza bt. Samsudin, Radhiah bt. Jamalludin, Shahrizan b. Saharudin, ITC, BST et al.
NUKLEAR MALAYSIA
KM PROCESS
Capture
Storage
Retrieval
Disseminate
Communicate
Leverage and Innovate
ICT TOOLS
E-mail
Web portal
Localweb
Shared folder
SPKMS
MyLib — Portal Perpustakaan
Nada Nuklear Portal
Technical Helpdesk
SPA — Sistem Pengurusan Aset
E-SSDL
E-SHEMS
SeMS — Seminar Management System
eSRL — Sistem Rekod Latihan
Centralize Radiation Monitoring System
eJSNM — Jurnal Sains Nuklear
eClient
NON ICT TOOLS
Training courses
R&D seminar
Technical convention
MG2G
Meetings
Knowledge sharing sessions
MSc, PhD Thesis Works
Student Supervision
SOPs, Technical Reporting, etc.
Now Everyone Can Share


IMPLEMENTATION OF
KNOWLEDGE MANAGEMENT
AT RTP (RxKM)
NUKLEAR MALAYSIA
PUSPATI TRIGA REACTOR (RTP)
1 and only nuclear research reactor in MALAYSIA
First criticality on June 28th, 1982
TRAINING RESEARCH ISOTOPE PRODUCTION GENERAL ATOMIC
K-STORING
K-SHARING
K-TRAINING
K-INNOVATING
RxKM APPROACH
Reduce the K-loss by strengthening K-SHARING
Preserve existing knowledge by making it accessible through K-STORING
Increase collaboration with stakeholders and enhance skills through K-TRAINING
Encourage exploration of new knowledge and innovation through K-INNOVATING
BENEFITS OF RxKM
Reduce costs from process improvements by increased participation and strong collaboration on innovation and opportunities
Less dependence (reduce costs) on external training programs, by employing internal coaching networks and Communities of Practice (CoP)
Reduce time spent on cyclic maintenance downtime through better planning and documentation
K-SHARING
• VISITORS
• EXHIBITIONS
• RG2G
• INTERACTIVE PANEL
• LIVE STREAMING
K-STORING
• SHARED FOLDER
• SHAREPOINT
• DOCUMENTATION ROOM
K-TRAINING
• UTM
• UNITEN
• NSEAP
• SUDAN UNIVERSITY OF S&T
• CONGO FELLOWSHIP
K-INNOVATING
• RTP SIMULATOR
CASE STUDY
ReDICS
K-SHARING
K-TRAINING
K-STORING
K-INNOVATING
"NOW EVERYONE CAN SHARE"
PREPARED BY: CoP PTR
ATTN: PTR MANAGER

Now Everyone can Share

Dose Response of in vitro MD2 Pineapple Cultures to GAMMA IRRADIATION

NUKLEAR MALAYSIA

Mustapha Akil, Norazlina Noordin, Shakinah Salleh, Nor Hafiz Talib, Nur Hayati Irwan, Nashimatul Adadiah Yahya
Agrotechnology and Bioscience Division, Malaysian Nuclear Agency Bangi, 43000 Kajang, Selangor, Malaysia

ABSTRACT

Gamma irradiation has been used widely as a tool to alter and improve genetic material for plant species. This nuclear technique is considered as an alternative means in plant breeding to create new desired varieties. Dose response test or alternatively called radiosensitivity test is a preliminary procedure in a mutation breeding program. A wide range of plants species were irradiated for many good purposes around the globe including fruit crops. One of the fruits that is very popular among Malaysian consumers is pineapple. Among pineapple varieties, MD2 has been regarded as a premium variety that can give relatively better yield. However, this variety is not spared from disease problems that could be detrimental to MD2 pineapple industry in Malaysia. Therefore, study is still being conducted to improve MD2 variety for disease tolerance through mutation breeding. For radiosensitivity test, in vitro meristem cultures of MD2 pineapple were applied to a series of acute gamma ray at doses 0, 10, 20, 30, 40, 50, 60, 70, 80, 100 and 120 Gy using gamma irradiator (BioBeam GM8000) at Nuclear Malaysia. Irradiated in vitro meristems were cultured in Murashige & Skoog medium comprising 1mg/l BAP + 0.1 mg/l NAA and incubated at 23°C at 16- hour photoperiod. For this test, survival percentage and number of new shoots formed after 60 days of incubation were calculated. As expected, the survival rate of in vitro meristem of MD2 pineapple was found decreased as the dose of gamma irradiation increased. 50% of lethality (LD50) can be extracted from the data and was found approximately 60 Gy. Consequently, for a mutation induction program, dose at LD50 and selected doses at 25% lower than LD50 and 25% higher than LD50 will be used as optimal doses. For the number of new shoots formed, the same trend was also observed where the higher the dose applied to the plant, the lower the formation of new shoots. In conclusion, it shows that different doses of gamma irradiation has significant effect to the survival and formation of new shoots of MD2 pineapple.

INTRODUCTION

- MD2 was produced by Pineapple Research Institute of Hawaii
- Sweeter taste, higher Vitamin C content, lower acidity, longer shelf life etc
- Susceptible to pineapple diseases such as heart rot disease caused by bacteria named *Erwinia chrysanthemi*
- Plant mutation breeding + plant biotechnology (*in vitro* culture) to speed up the process of improving crop development by generating and utilizing genetic variability
- Dose response or radiosensitivity test procedure must be done to obtain lethal dose 50 (LD50).

- 50 meristem explants of MD2 pineapple (cultured in Murashige & Skoog basal media) were divided into 5 replicates (10 explants per container) to examine their sensitivity.
- Irradiated cultures and control were left in incubation room for 14 days in 23°C and 16 hours/day photoperiod. Irradiated meristem explants were then transferred into fresh Murashige & Skoog media supplemented with 1mg/l BAP + 0.1 mg/l NAA.
- The data of survival rate and number of new shoot formed were collected on 60th day. LD50 and optimal doses were calculated based on linear regression of survival rate against treatment dose.

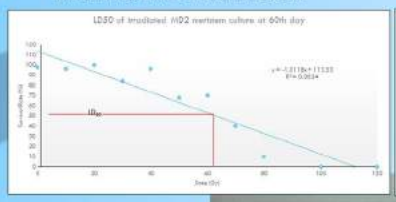
METHODOLOGY

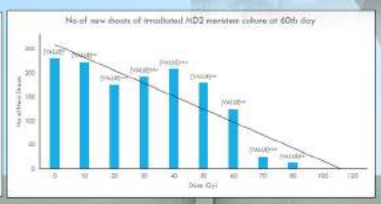
0, 10, 20, 30, 40, 50, 60, 70, 80, 100 and 120 Gy

BioBeam GM8000 (acute irradiation)

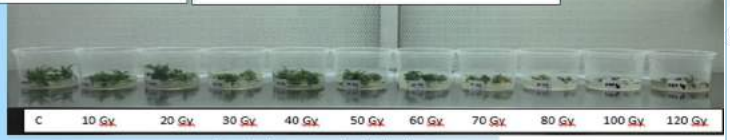
Incubation for 60 days in 23°C and 16 hours/day photoperiod

RESULTS AND DISCUSSION





Comparison of irradiated MD2 pineapple explant on 60th day of incubation



CONCLUSION

- Gamma ray has capacity to affect the survival rate and formation of new shoots of MD2 pineapple.
- LD_{50} was calculated using linear regression plot and was found around 60 Gy
- The estimated LD_{50} value can be used to find other optimal doses for the next mutation induction

- The same trend was seen for both of survival rate and the number of new shoots formed which is found inversely proportional against irradiation doses.
- The higher the dose received by the explant, the lower the survival rate and number of new shoots formed.

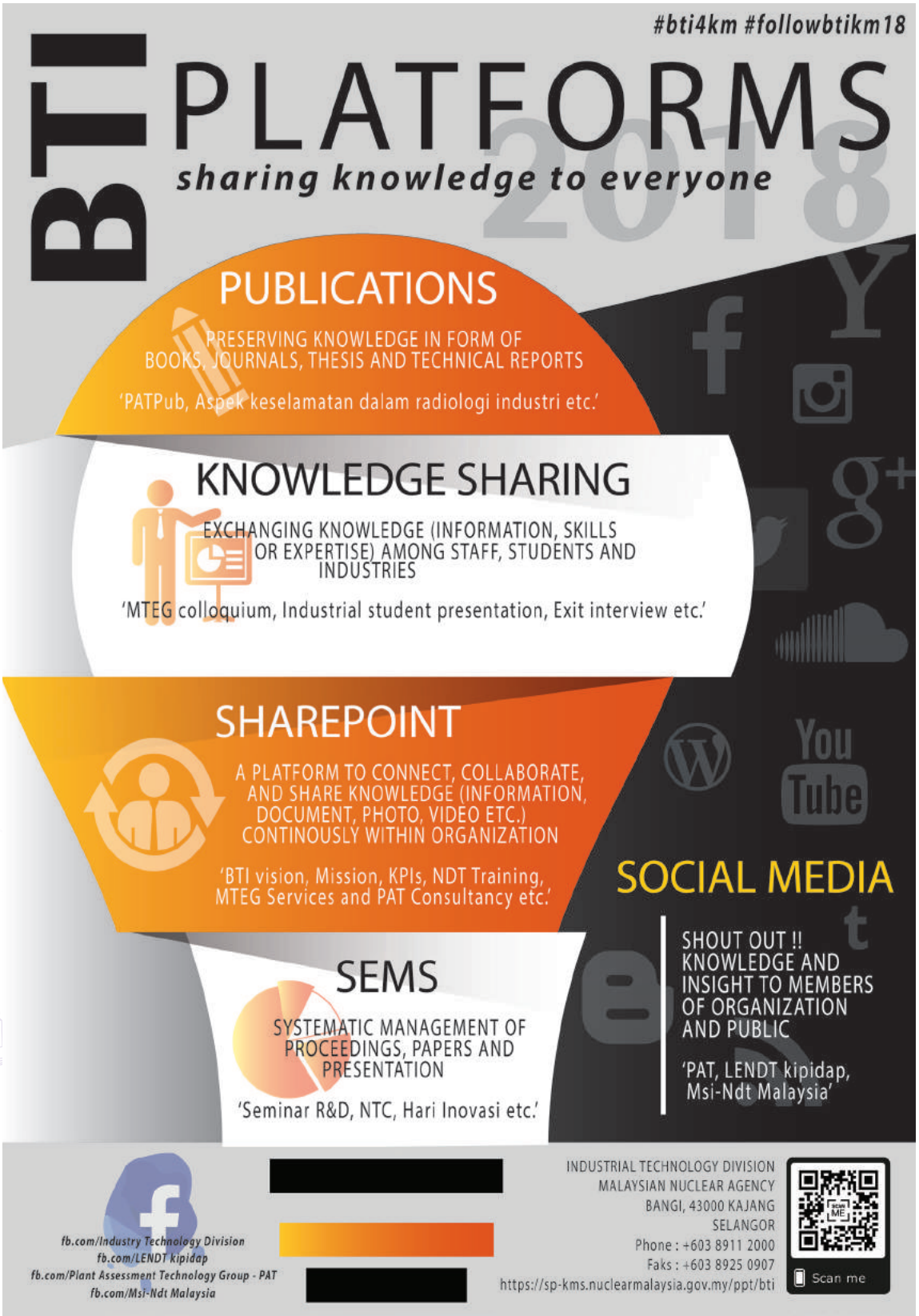
- Based on linear regression plot, the dose required for 50% of lethality (LD50) was calculated approximately 60 Gy. Therefore, dose at LD50 and dose around 25% lower and above LD50 are considered as optimal doses for mutation induction.
- There was significant effect of dose treatment in comparison with the control for doses above 60 Gy

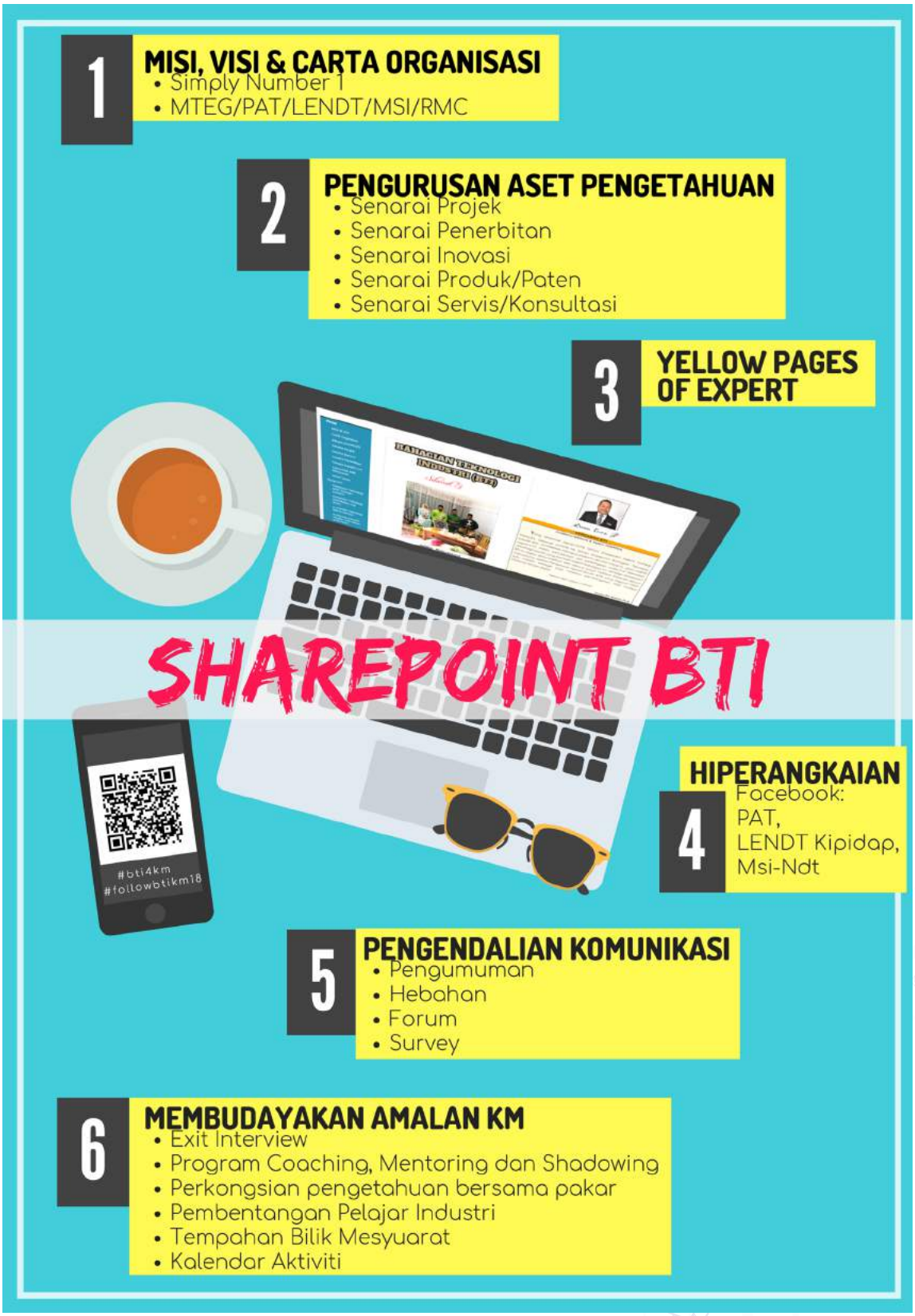
For further information, please contact

Director General
Malaysia Nuclear Agency
(Nuclear Malaysia)
Bangi 43000 Kajang, Selangor
http://www.nuclearmalaysia.gov.my

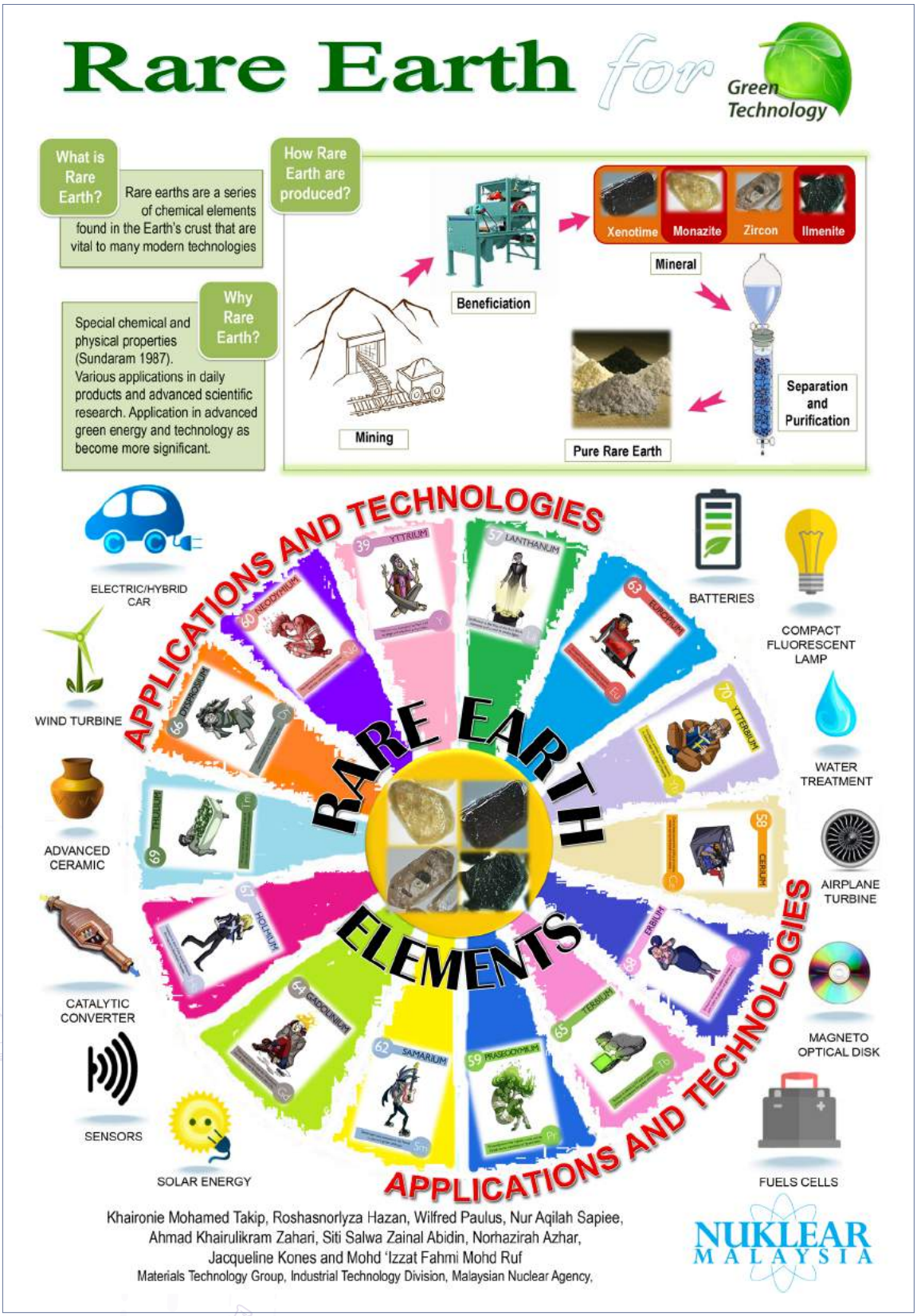
Attn : Mustapha Akil
Agrotechnology and Bioscience Division
Malaysian Nuclear Agency
mustapha@nm.gov.my

BTI Platforms Sharing Knowledge to Everyone




1
MISI, VISI & CARTA ORGANISASI
• Simply Number 1
• MTEG/PAT/LENDT/MSI/RMC
2
PENGURUSAN ASET PENGETAHUAN
• Senarai Projek
• Senarai Penerbitan
• Senarai Inovasi
• Senarai Produk/Paten
• Senarai Servis/Konsultasi
3
YELLOW PAGES OF EXPERT
SHAREPOINT BTI
#bti4km
#followbtikm18
4
HIPERANGKAIAN
Facebook:
PAT,
LENDT Kipidap,
Msi-Ndt
5
PENGENDALIAN KOMUNIKASI
• Pengumuman
• Hebahan
• Forum
• Survey
6
MEMBUDAYAKAN AMALAN KM
• Exit Interview
• Program Coaching, Mentoring dan Shadowing
• Perkongsian pengetahuan bersama pakar
• Pembentangan Pelajar Industri
• Tempahan Bilik Mesyuarat
• Kalendar Aktiviti

Rare Earth for Green Technology



KEMENTERIAN TENAGA, SAINS, TEKNOLOGI, ALAM SEKITAR DAN PERUBAHAN IKLIM

HARI KM AGENSI NUKLEAR MALAYSIA 2018
RADIATION PROCESSING TECHNOLOGY DIVISION
KNOWLEDGE SHARING CULTURE IN BTS

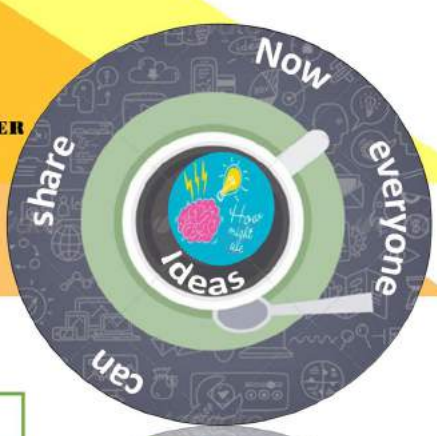
NUKLEAR MALAYSIA

INTRODUCTION

YES, everyone can share, however sharing in BTS are conducted ethically in order to enhance R&D and moral value **in** BTS division. Hence, the sharing management at BTS is concerned with the objective of sharing, materials to be shared and the right time for sharing. Precautionary steps are also taken to celebrate the benefits of sharing and to avoid dilemmas faced in sharing in the future.

SHARING OBJECTIVES

- Access document/information anytime & anywhere.
- Generate profit from Polymer pilot plant facilities and Characterization services.
- Internal and external Collaboration in R&D.
- Assist staff to streamline their activities.



ASSETS TO BE SHARED

Services
- Polymer & Nanomaterials Characterization
- Consultation.

Infrastructures
- Polymer Processing Pilot Plant, OPV & APO Resin Pilot Plants, Oligochitosan Pilot Plant and CM Starch/polymer Processing Lab

Publication
- Scientific articles
- SOP
- Procedure maps
- Product & process videos

Tacit Knowledge
- Best practices
- Experiences

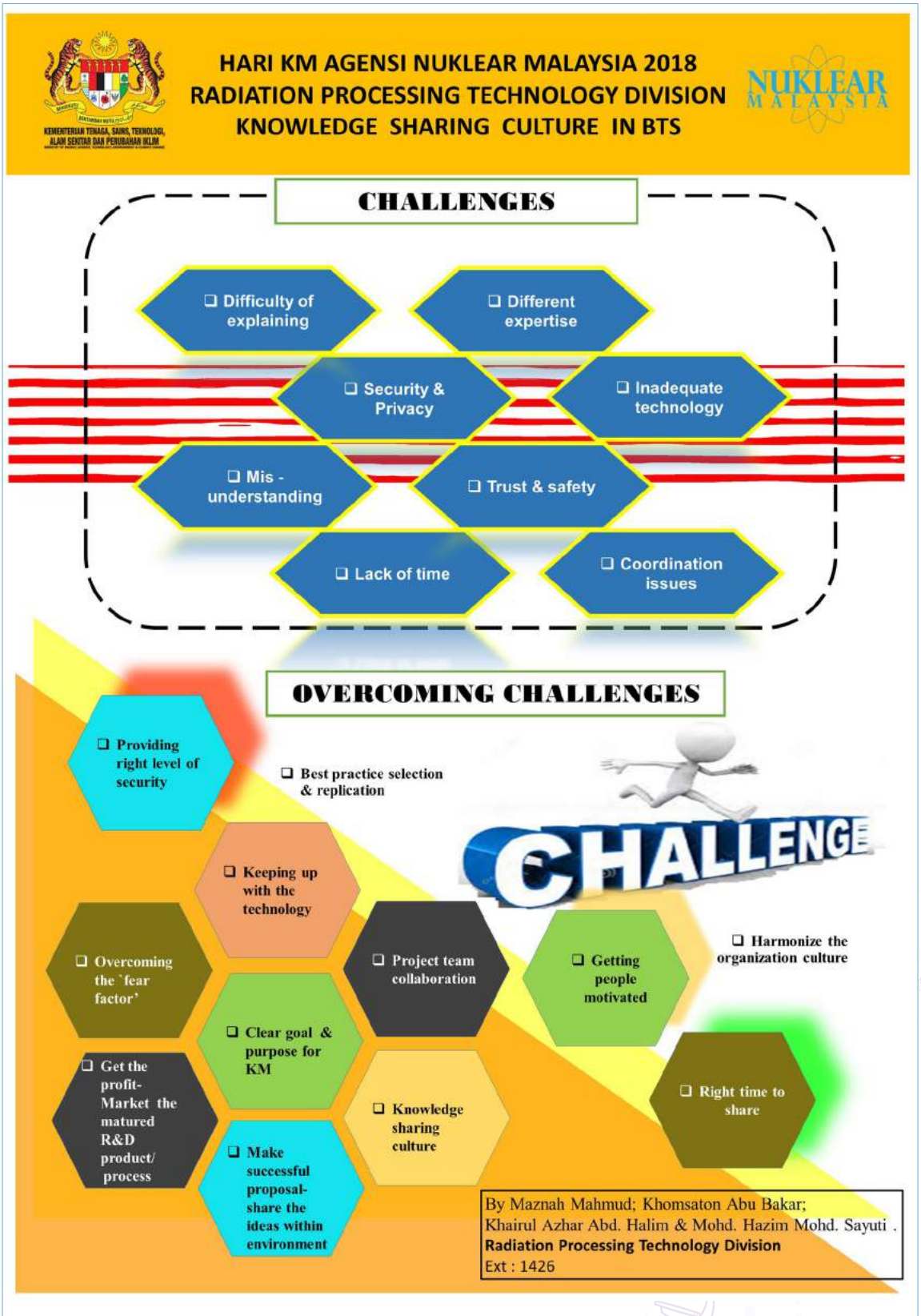
Share

Controversial opinion

Personel Information

Don't Share

Radiation Processing Technology Division
Knowledge Sharing Culture in BTS


HARI KM AGENSI NUKLEAR MALAYSIA 2018
RADIATION PROCESSING TECHNOLOGY DIVISION
KNOWLEDGE SHARING CULTURE IN BTS
NUKLEAR MALAYSIA
KEMENTERIAN TENAGA, SAINS, TEKNOLOGI, ALAM SEKITAR DAN PERUBAHAN IKLIM
CHALLENGES
❑ Difficulty of explaining
❑ Different expertise
❑ Security & Privacy
❑ Inadequate technology
❑ Mis - understanding
❑ Trust & safety
❑ Lack of time
❑ Coordination issues
OVERCOMING CHALLENGES
❑ Providing right level of security
❑ Best practice selection & replication
CHALLENGE
❑ Keeping up with the technology
❑ Overcoming the `fear factor'
❑ Project team collaboration
❑ Getting people motivated
❑ Harmonize the organization culture
❑ Clear goal & purpose for KM
❑ Get the profit-Market the matured R&D product/ process
❑ Knowledge sharing culture
❑ Right time to share
❑ Make successful proposal-share the ideas within environment
By Maznah Mahmud; Khomsaton Abu Bakar;
Khairul Azhar Abd. Halim & Mohd. Hazim Mohd. Sayuti .
Radiation Processing Technology Division
Ext : 1426

Knowledge Management (KM) for Development of Training Programme

NOW EVERYONE CAN SHARE

Robiatul Adawiyah Ahmad Tajuddin, Tn. Hj. Ahamad Sahali Mardi, Dr. Mahmood Dollah, Pn. Nurhamizah Ayuni Saimi & Pn. Fatimah Kasim
COMMERCIALIZATION OF TECHNOLOGY DIVISION
MALAYSIAN NUCLEAR AGENCY

The Important of Knowledge Sharing at BKT:

- ❑ Help BKT staff to discuss and communicate
- ❑ Communicate with internal & external client and collaborators
- ❑ Build collective knowledge
- ❑ Retain knowledge
- ❑ Increase innovation
- ❑ To avoid brain drain

Knowledge stored as:

- ❑ Document
- ❑ Technical reports
- ❑ Pictures
- ❑ Videos
- ❑ Database

Sharing platform:

- ❑ Seminar / workshop
- ❑ Exhibition
- ❑ Sharing session
- ❑ Regular division meeting

Tools:

- ❑ E-CLIENT System Portal
- ❑ BKT Sharepoint
- ❑ Whatsapps Appication
- ❑ BKT Shared Folder
- ❑ BKT e-Book **will be use soon*
- ❑ Email @nm.gov.my
- ❑ @nuklearmalaysia
- ❑ Nuklear Malaysia
- ❑ Agensi Nuklear Malaysia

Conclusion

Knowledge sharing become more easier and effective with new and advance technology. Its help BKT to increase productivity and quality of work.

Knowledge Sharing on Development of Whole Body Counter Laboratory

Suzilawati Muhd Sarowi, Nur Khairunisa Zahidi, Norhayati Abdullah, Azimawati Ahmad & Raymond Yapp Tze Loong
Radiation Safety & Health Division, Malaysian Nuclear Agency

ABSTRACT

A part of radiation protection for the workers, an occupational dose limit of 20 mSv/year (for external and internal exposures) is set by the authority as stipulated in the Basic Safety Radiation Protection (BSRP 2010). Currently, Malaysian Nuclear Agency focus on measurement of external radiation which is easily can be measured using a personal device dosimeter. In order to strengthen the monitoring programme as well as for emergency preparedness and respond the Whole Body Counter (WBC) Laboratory was developed. By using the WBC, the dose from radionuclides that deposited inside the body could be measured. This is a new field in Malaysia and as knowledge sharing is very important aspect in an organisation, all information related to the WBC were uploaded in the sharefolder. This paper discuss how the knowledge on the development of WBC Laboratory are shared in the Radiation Safety & Health Division.

INTRODUCTION

A personnel dealing with radioactive materials may exposed to the radiation either externally or internally. Internal exposure occurs when radioactive materials enter into the body. One approach to determine an internal dose is using a special equipment known as WBC. Aftermath the Fukushima accident in Japan, Malaysian Nuclear Agency has developed this laboratory. The WBC can measure the intake of gamma emitter such as Cesium-137, Cobalt-60, Iodine -131 and Samarium-153. The development starts from the renovation of the laboratory and purchased the WBC in 2012. Today, the lab is equipped with WBC from ORTEC, USA. The flow chart of internal dosimetry procedure using WBC was shown in Figure 1. To maintain the continuity of knowledge and service, all information, skill and expertise are exchanged between the staff in the division.

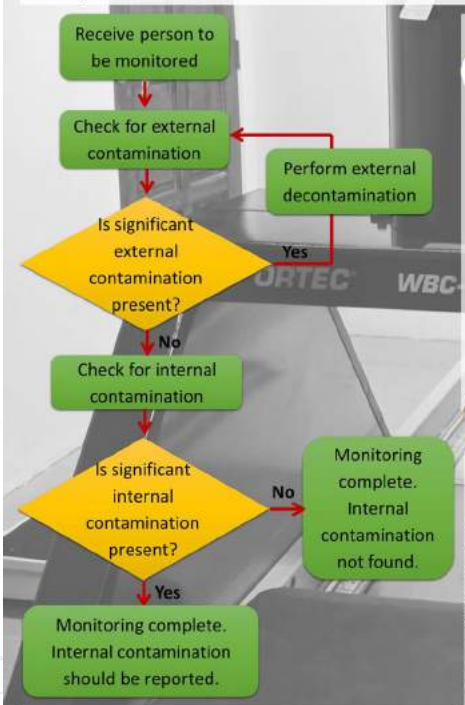


Figure 1: Internal dosimetry procedure using WBC.

Figure 2: The procedure in checking for external contamination on the body and cloths (frisking technique).

METHODS FOR KNOWLEDGE SHARING

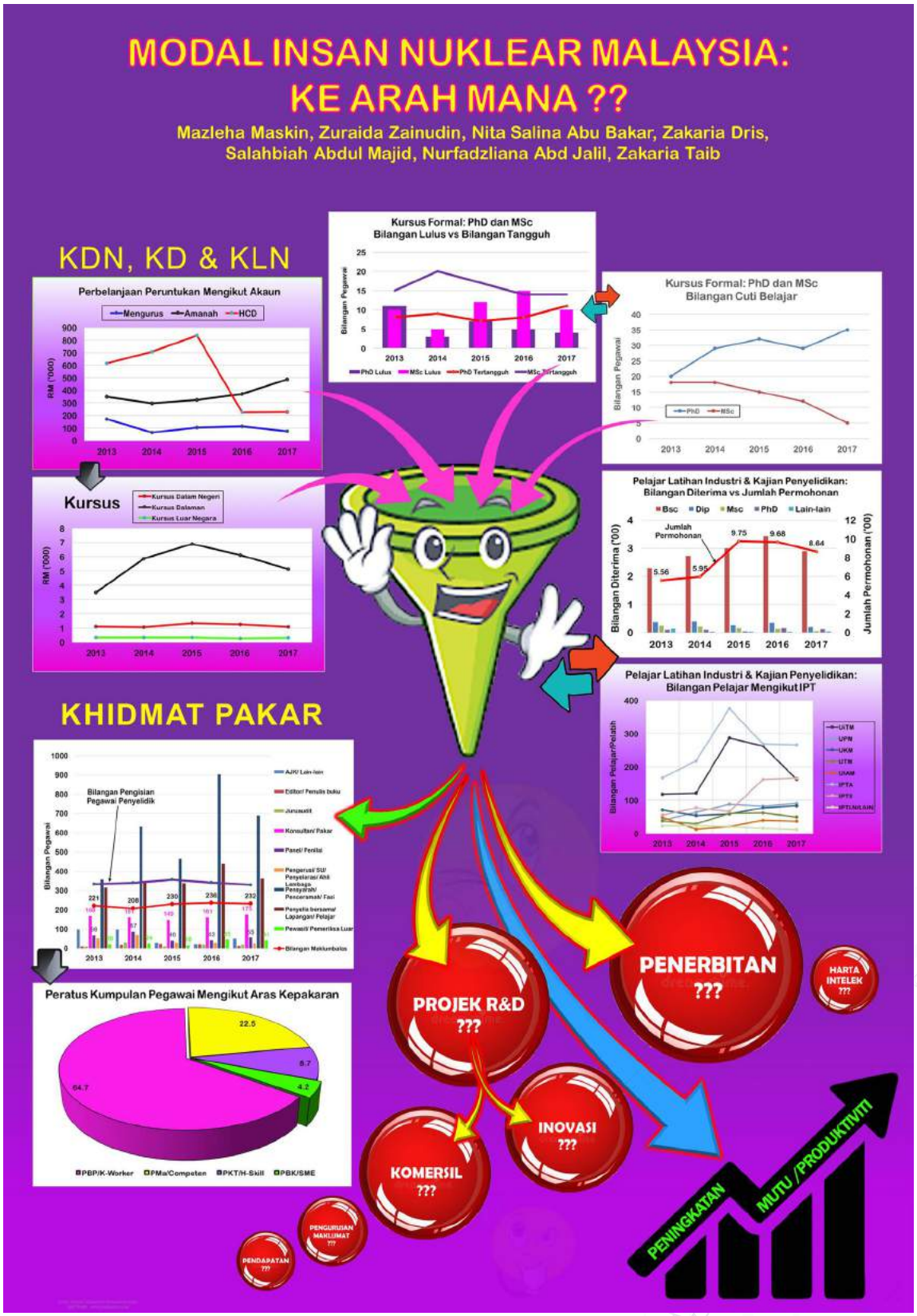
1. Literature review and determine the knowledge to be shared on internal dosimetry measurement using WBC.
2. Develop standard operating procedures (SOP's) and form.
3. Upload the (SOP's) and forms in the sharefolder \\ntserver1\atomds\BKS\KFK\WHOLEBODYCOUNTERTERRITORY\Internal Dose Monitoring.
4. The whatsapp application also created ;consist of all the team members.
5. Provide training to staffs, PGEC participants, IAEA fellows, FTC participants, university students etc
6. Technical visit by the government agencies to the laboratory i.e ATM, etc
7. Papers presentation in national and international seminars

RESULTS & DISCUSSION

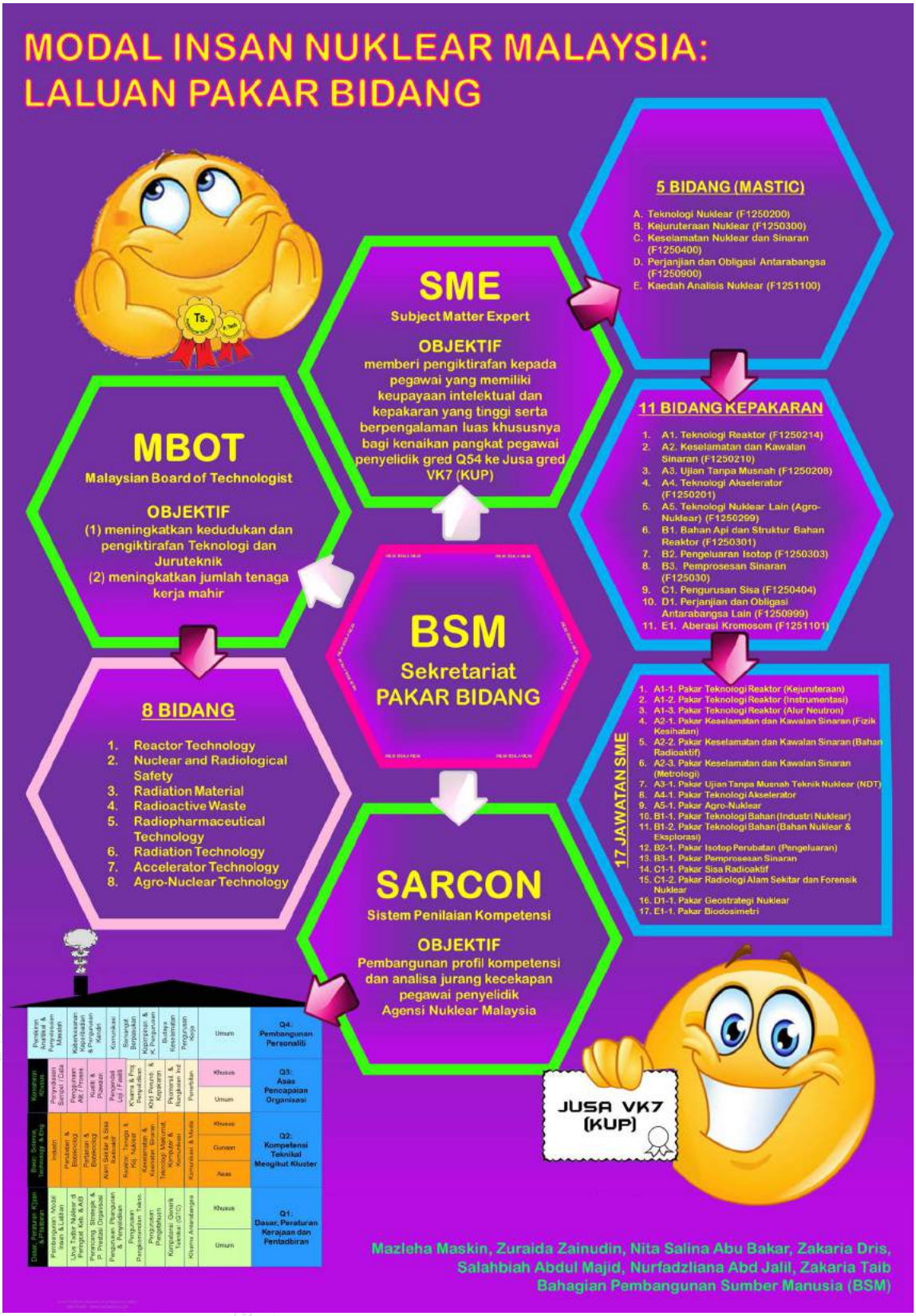
The SOP were developed such as checking for external contamination and frisking technique prior scanning using the WBC as shown in Figure 2 and how to perform decontamination. The details of the patient to be scanned are filled in the prepared standard form. Sharefolder tool is an easy way and quick for the team members to perform the task whenever is needed. Everybody could access the sharefolder. The training is a tool to ensure all member in the team obtain the skill and the good practice when using the WBC. As the team members is not gathered all the time, communication and discussion is taking place through *whatsapp* application. Then, the members could obtain the information/ current issue related to the WBC without fail.

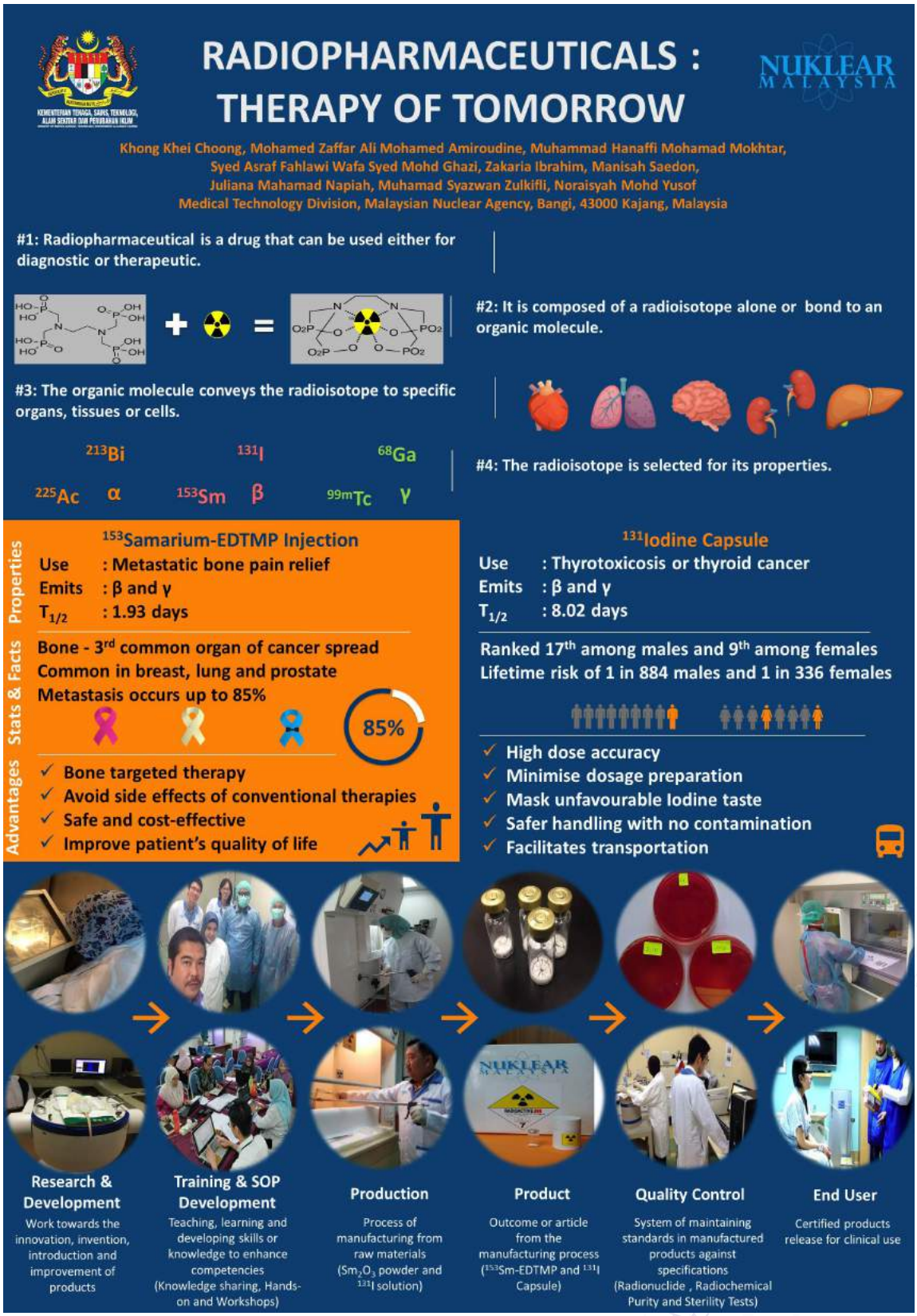
CONCLUSION

Sharing the knowledge is important to create awareness among the personnel involved in the division, increase the co-ordination among the team members then provides immediate solution once occur. The *whatsapp* application seems as an effective tool in communicating for the team and everyone can share regarding the WBC. Hence, the efficiency of work could be improve.


MODAL INSAN NUKLEAR MALAYSIA:
KE ARAH MANA ??
Mazleha Maskin, Zuraida Zainudin, Nita Salina Abu Bakar, Zakaria Dris,
Salahbiah Abdul Majid, Nurfadzliana Abd Jalil, Zakaria Taib
KDN, KD & KLN
Perbelanjaan Peruntukan Mengikut Akaun
Mengurus
Amanah
HCD
RM ('000)
Kursus Formal: PhD dan MSc
Bilangan Lulus vs Bilangan Tangguh
Bilangan Pegawai
PhD Lulus
MSc Lulus
PhD Tertangguh
MSc Tertangguh
Kursus Formal: PhD dan MSc
Bilangan Cuti Belajar
PhD
MSc
Kursus
Kursus Dalam Negeri
Kursus Dalaman
Kursus Luar Negara
Pelajar Latihan Industri & Kajian Penyelidikan:
Bilangan Diterima vs Jumlah Permohonan
Bsc
Dip
Msc
PhD
Lain-lain
Jumlah Permohonan
Bilangan Diterima ('00)
Jumlah Permohonan ('00)
5.56
5.95
9.75
9.68
8.64
Pelajar Latihan Industri & Kajian Penyelidikan:
Bilangan Pelajar Mengikut IPT
Bilangan Pelajar/Pelatih
KHIDMAT PAKAR
Bilangan Pengisian
Pegawai Penyelidik
Bilangan Pegawai
Konsultan/ Pakar
Pasel/ Penilai
Bilangan Meklumbalas
Peratus Kumpulan Pegawai Mengikut Aras Kepakaran
22.6
8.7
4.2
64.7
PBP/K-Worker
PMa/Competen
PKT/H-Skill
PBK/SME
PENERBITAN
???
PROJEK R&D
???
HARTA
INTELEK
???
INOVASI
???
KOMERSIL
???
PENGURUSAN
MAKLUMAT
???
PENDAPATAN
???
PENINGKATAN
MUTU /PRODUKTIVITI

Modal Insan Nuklear Malaysia : Laluan Pakar Bidang




RADIOPHARMACEUTICALS :
THERAPY OF TOMORROW
NUKLEAR MALAYSIA
Khong Khei Choong, Mohamed Zaffar Ali Mohamed Amiroudine, Muhammad Hanaffi Mohamad Mokhtar,
Syed Asraf Fahlawi Wafa Syed Mohd Ghazi, Zakaria Ibrahim, Manisah Saedon,
Juliana Mahamad Napiah, Muhamad Syazwan Zulkifli, Noraisyah Mohd Yusof
Medical Technology Division, Malaysian Nuclear Agency, Bangi, 43000 Kajang, Malaysia
#1: Radiopharmaceutical is a drug that can be used either for diagnostic or therapeutic.
#2: It is composed of a radioisotope alone or bond to an organic molecule.
#3: The organic molecule conveys the radioisotope to specific organs, tissues or cells.
213Bi 131I 68Ga
225Ac α 153Sm β 99mTc γ
#4: The radioisotope is selected for its properties.
Properties
153Samarium-EDTMP Injection
Use : Metastatic bone pain relief
Emits : β and γ
T1/2 : 1.93 days
Stats & Facts
Bone - 3rd common organ of cancer spread
Common in breast, lung and prostate
Metastasis occurs up to 85%
85%
Advantages
✓ Bone targeted therapy
✓ Avoid side effects of conventional therapies
✓ Safe and cost-effective
✓ Improve patient's quality of life
131Iodine Capsule
Use : Thyrotoxicosis or thyroid cancer
Emits : β and γ
T1/2 : 8.02 days
Ranked 17th among males and 9th among females
Lifetime risk of 1 in 884 males and 1 in 336 females
✓ High dose accuracy
✓ Minimise dosage preparation
✓ Mask unfavourable Iodine taste
✓ Safer handling with no contamination
✓ Facilitates transportation
Research & Development
Work towards the innovation, invention, introduction and improvement of products
Training & SOP Development
Teaching, learning and developing skills or knowledge to enhance competencies (Knowledge sharing, Hands-on and Workshops)
Production
Process of manufacturing from raw materials (Sm_2O_3 powder and 131I solution)
Product
Outcome or article from the manufacturing process (153Sm-EDTMP and 131I Capsule)
Quality Control
System of maintaining standards in manufactured products against specifications (Radionuclide , Radiochemical Purity and Sterility Tests)
End User
Certified products release for clinical use

Medical Radioisotopes QC Service

ENHANCING OPERATIONAL SAFETY THROUGH KNOWLEDGE MANAGEMENT

Syed Asraf Fahlawi Wafa Syed Mohd Ghazi, Khong Khei Choong, Mohamed Zaffar Ali Mohamed Amiroudine, Zakaria Ibrahim, Manisah Saedon, Muhammad Hanaffi Mohamad Mokhtar, Juliana Mahamad Napiah, Muhamad Syazwan Zulkifli, Noraisyah Mohd Yusof
Medical Technology Division, Malaysian Nuclear Agency, Bangi, 43000 Kajang, Malaysia

DESCRIPTION

Even though everybody claims that safety system and working procedure are in place, but when the incidents occur, the incident investigation shows otherwise. It shows that most of the personal don't really understand the procedure and still lack of knowledge. Therefore, corrective and preventive action must be carried out to minimize the occurrence of the incident.

OBJECTIVE

To enhance knowledge & safety culture for improvement of safety and compliances while handling radioactive material

INCIDENT

PROBLEM STATEMENT

i. Lack of safety awareness among personal
ii. Lack of understanding on SOP
iii. Lack of exposure handling on new radioisotope

PROACTIVE RESPONSE

TEACHING & LEARNING

WORKSHOP

DOCUMENT REVIEW

PRACTICAL

OUTCOME

ITEM (USED & RECORD)	BEFORE (JAN – MAC 2018)	AFTER (APRIL – JUN 2018)
MONITORING FORM (BTP RAM Form)	1	7
DIGITAL DOSIMETER	18	39

CONCLUSION

From the table, it shows that more than 86% personal has complied to the use of BTP RAM while 54% increment of digital dosimeter usage. This indicates that a significant improvement in safety working culture. The proactive response conducted as KM tools assist in the dissemination of knowledge and skills.

MERAKYATKAN PENGETAHUAN NUKLEAR MELALUI PENULISAN SAINTIFIK

Nor Azlina Nordin, Wan Jazlina Wan Ahmat dan Normazlin Ismail

PENGENALAN

Ilmu pengetahuan Nuklear Malaysia adalah unik dan menjadi aset penting negara kerana Nuklear Malaysia merupakan satu-satunya agensi yang menjalankan penyelidikan mengenai nuklear. Ilmu pengetahuan ini perlu disampaikan kepada institusi pendidikan tinggi, penyelidik dan orang awam agar ia bermanfaat. Penerbitan saintifik merupakan antara kaedah berkesan untuk merakyatkan pengetahuan sama ada dalam bentuk teknikal mahupun kreatif. Penerbitan saintifik juga sangat penting ke arah melestarikan pengetahuan nuklear negara.

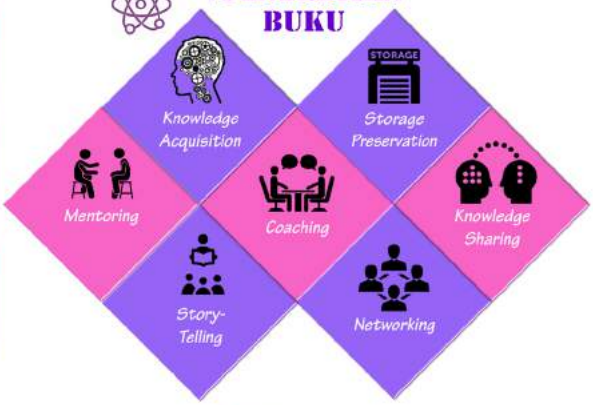
NOTA KAKI

"Untuk mendokumentasikan kepakaran Nuklear Malaysia untuk disebarkan dan dirujuk"

Pengetahuan dan kepakaran yang tidak diuruskan dengan baik, disebarkan, dimanfaatkan dan dipelihara akan hilang di saat kita kehilangan pemiliknya

"Untuk menterjemahkan pengetahuan tersirat pakar kepada tersurat (*implicit knowledge*)"

PENGURUSAN PENGETAHUAN #PENERBITAN BUKU



CABARAN DALAM PENULISAN

KAEDAH MENGATASI CABARAN

Bengkel/seminar penulisan secara berkala	Program penulisan buku secara berstruktur	Bimbingan di sepanjang proses penulisan manuskrip
Sokongan penyediaan foto/rajah/ilustrasi	Pemantapan budaya KM dan penulisan	Sokongan padu daripada pihak pengurusan

Kerjasama dengan agensi lain yang berkaitan:
Dewan Bahasa dan Pustaka, IPT, Agensi Penyelidikan

UNTUK MAKLUMAT LANJUT, SILA HUBUNGI :

Unit Penerbitan
Bahagian Pengurusan Maklumat
Agensi Nuklear Malaysia
Bangi, 43000 Kajang, Selangor

BPM INFORMATION SHARING PLATFORM

Nasaai Masngut, Norzehan Ngadiron and Mohd Sha Affandi Md Aripin
Information Management Division, Malaysian Nuclear Agency

Sharepoint, P-Canvas, Sharefolder for Information Storage and Sharing

BPM has been operating with the goal to provide the right information at the right time to the right person. To achieve this, BPM is known to handle various types of information with different volumes and metadata. As a result, information preservation has been a challenge for some time. Preservation is important to select the most valuable information among that much information, to ensure it remains readable, accessible and understandable, and to manage technological change over time to reduce technology gap for information preservation. Proper selection of storage and tools for preservation are essential for information continuity and accessibility.

BPM SHAREPOINT

> 1 stop center for media, news, announcement & events.
> Repository for documents and collaboration center.
> Different user access by permission granted by administrator.

2010 onward
> 10,000 collection

Nuclear Malaysia events
> 50 hrs recording

Various types
> 100

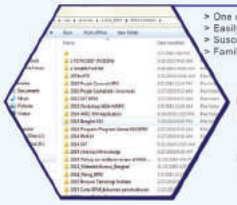
P-CANVAS

> Special repository for media e.g. picture & video.
> Accessible by outsiders (limited by watermark).
> Comprehensive search engine & metadata.
> Sort & search by collection, year, event etc.

Established 2015
Total collection : 27,369
User session : 8,551
Storage capacity : 36TB

Video excerpt of :
1) Exit interview
2) Researches
3) Knowledge sharing

BPM SHAREFOLDER



> One of earliest repository for documents and media
> Easily accessible via PC and personal credentials
> Susceptible to network disruption as it is local network.
> Familiarity as it runs on Windows platform (Explorer)

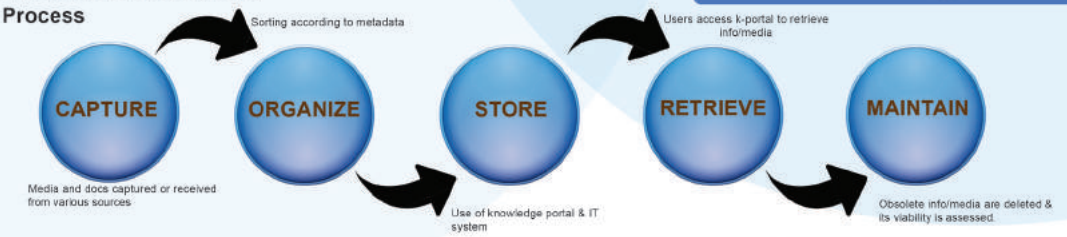
Contain early pictures of NM. Pictures are unsorted in folders.

Online sharing platform. Publication listing from 2010 onward. >7000 publications listing.

BPM TEATALK

- A series of monthly talk to share information & knowledge
- Applicable to those returning from local or abroad training
- Files or document are shared either in Sharefolder or Sharepoint

Information Preservation Process



DVD AS STORAGE MEDIUM

DVD is often used to store recorded video. However, it also sometimes used to keep installation software in early days, where mobile storage were less common. Today, DVD retain its worthiness due to its character of roughness and less susceptible to online or network disruption.

BPM mostly stored video recording of exit interview and research videos in DVD as back up and easier access for non-IT savvy.

User may obtain a copy of the DVD via request to the main Library located at Block 15.

NOW, EVERYONE CAN SHARE

FOR FURTHER INFO, PLEASE CONTACT :
Information Service Unit,
Information Management Division
Malaysian Nuclear Agency
Bangi, 43000 Kajang Selangor
Phone : 03 8911 2000


NUKLEAR MALAYSIA
PUSAT PENGUMPULAN MAKLUMAT
NOR SURIANI BINTI MOHD ZIN, ARMAY BIN DOLLAH, AZRAWIRDA ZARZA BINTI ADNAN, MUHAMMAD HAFIDZUDIN BIN MAHADZIR DAN CARLOS LINTON
KOLEKSI PERPUSTAKAAN
11,153 NASKHAH
KOLEKSI UMUM
5,434 NASKHAH
KOLEKSI KHAS TERBITAN
350 NASKHAH
KOLEKSI TESIS
835 NASKHAH
KOLEKSI BERJILID
780 NASKHAH
KOLEKSI TERBITAN BERSIRI
320 CD/CD-ROM
KOLEKSI CD/CD-ROM
300 NASKHAH
PINJAMAN BERKELOMPOK (PNM)
OPAC
Online Public Access Catalog
WEB OPAC
19, 844 REKOD BIBLIOGRAFI
TAG CLOUD
(PILIHAN CARIAN BAHAN MENGGUNAKAN SUBJEK DAN KATEGORI BAHAN)
TAGCloud
SDI
SELECTIVE DISSEMINATION INFORMATION (SDI)
25, 673 ARTIKEL
GALERI FOTO/VIDEO
27, 369 BAHAN
RUANG SANTAI
RUANG BINCANG
BILIK PERBINCANGAN
SUDUT CARREL
PORTAL PERPUSTAKAAN ANM
RUANG MEMBACA
STESEN KOMPUTER
WIFI PERCUMA
MAKLUMAT LANJUT SILA HUBUNGI:
PERPUSTAKAAN AGENSI NUKLEAR MALAYSIA
BANGI, 43000 KAJANG, SELANGOR
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PEMENANG

Pemenang Keseluruhan : BTI

Johan Pertandingan Poster : BTI

Johan Pertandingan Sharepoint : BTI

SENARAI PEMENANG

PERKARA	PEMENANG
JUARA KESELURUHAN	BTI

KATEGORI SHAREPOINT	PEMENANG
Pemenang No. 1	BTI
Pemenang No. 2	BAB
Pemenang No. 3	BTP

KATEGORI POSTER	PEMENANG
Pemenang No. 1	BTI - 11
Pemenang No. 2	BPM - 25
Pemenang No. 3	BTI - 10

KATEGORI KNOWLEDGE BOOK	PEMENANG
SEMPENA BENGKEL KNOWLEDGE BOOK 2.0	BTS

SEKITAR MAJLIS


LEXUS

HARI PENGURUSAN PENGETAHUAN (KM) 2018