Final report 2018
Digital Archive System at ANRI – DASA

"The challenge ahead is substantial,
but 'to uncover the past, we will meet the future.
More importantly, we have to learn from the past".

Prof. Dr. Bambang Hidayat,
chairman Program Board DASA

Table of contents

1. Management Summary

This project account presents in short, the digital long-term preservation and publishing activities regarding old Dutch Archive Series which are stored at the Arsip Nasional Republik Indonesia (ANRI) in Jakarta, Indonesia.

ANRI in cooperation with The Corts Foundation (TCF) executed the "Digital Archive System at ANRI - DASA" – project, from May 18, 2011 (the signing of the first M.o.U./Program Directive) until October 19, 2017 (the closure of the second M.o.U./Program Directive).

More than 1.1 million scans of old Dutch manuscripts were digitally preserved for the long term and made accessible through the project website: Https://sejarah-nusantara.anri.go.id.

During this process a website with databases and inventories and articles were published, while major archival discoveries were made. An easy-to-use digital publication system which bears the name of the project: "DASA" was developed.
In doing so the main core of the VOC archives of the High Government was presented online, consisting of the archival series of the so called "Dagh-Registers" (Daily Registers), "Resolutieboeken" (Resolution Books) and "Bijlagen bij de Resoluties" (Appendices Resolution Books). In order to provide access to these series databases of Marginalia and Realia were developed and published online as well

It has been a complex academic heritage project, only made possible by the mutual trust, respect and hard work of ANRI and TCF – staff and personnel, advisors and system developers. Members of a Program Board, representing ANRI and TCF under the guidance of an independent chairman, steered this project. An Advisory Board with renowned international scholars assisted this project. Given their dedication to this project they deserve our gratitude.

This project was conducted through a mix of archival, historical and ICT- technical sub- projects to make the final challenging project deliverables come true and safeguarding the outcome for the future.

The project account has been drafted by the overall project manager of TCF, who solely is responsible for the contents of this Final report. This was drafted on the basis of project documents as among others Minutes of Program Board meetings, Progress Reports, yearly Project Plans, High Level Project Planning reports and DASA system documentation.

ANRI has been entrusted with a large and historically important collection of Dutch VOC - records of the 17th and 18th century; an archive series collection that is inserted in UNESCO's "Memory of the World Register".

The DASA project has contributed to the safeguarding of ANRI's unique position as main "Excellence Center" in the world for Asian maritime history.

ANRI and TCF prepared a solid foundation for a continuation of the VOC Program by ANRI. "New policies regarding the maintenance of hardware and software needs are to be made, including the sustainability of the "Sejarah Nusantara- website".

2. Project Description and Deliverables

The Arsip Nasional Republik Indonesia (ANRI) in Jakarta, Indonesia, is responsible for preserving, safekeeping and providing access to important collections of VOC-documents in its climatically controlled repositories.
These collections (approx. 2,5 kilometres) are preserved in the 'Archive of the Dutch East India Company (VOC)'. All VOC archives in the world are included in the UNESCO Memory of the World Register in 2004, after request of the Netherlands (the National Archives at The Hague).

This is a global recognition, that these old Dutch archives are among the most important written sources for the (maritime) history of Asia in the period 1600-1800.

As the VOC archives have a cultural heritage status which is legally protected under international law, it is imperative that the archives are well taken care of. It also means, that the international scholarly world and the broad public deserve the right to have direct access to these collections online.

The Corts Foundation (henceforth: 'TCF'), legally registered in the old VOC town of Enkhuizen, the Netherlands, has a statutory obligation to safeguard the rich history of Indonesia, especially with regard to the 17th and 18th centuries. Amongst TCF's primary objectives is the commitment to preserve, maintain, and provide access to the VOC archives currently stored at ANRI.

ANRI and TCF both share the same vision regarding the importance of preserving, maintaining and providing access to these unique archives. This shared vision resulted in a 'Memorandum of Understanding' (M.o.U.) and Program Directive in Jakarta on 18 May 2011. This was extended on 7 October 2014 to enable the development of ANRI-TCF collaboration for a further three years (2014-2017). Both M.o.U.'s and Program Directives were fully subject to and in accordance of relevant Indonesian government regulations, approval and control. This was formally authorized in writing by the Director General of ANRI and the President of TCF.
The collaboration has ended officially on October 19, 2017, as the project objectives were met.

The idea at the start of the project was to create a "Center of Excellence" based on the unique "back bone" of the VOC- archives at ANRI, by selecting the most useful archives of academic interest for academics, students and the general public the world all over.
The acquired project deliverables ensure, that ANRI as the principal and leading archive institution in the world in this field is able to justify their academic importance.
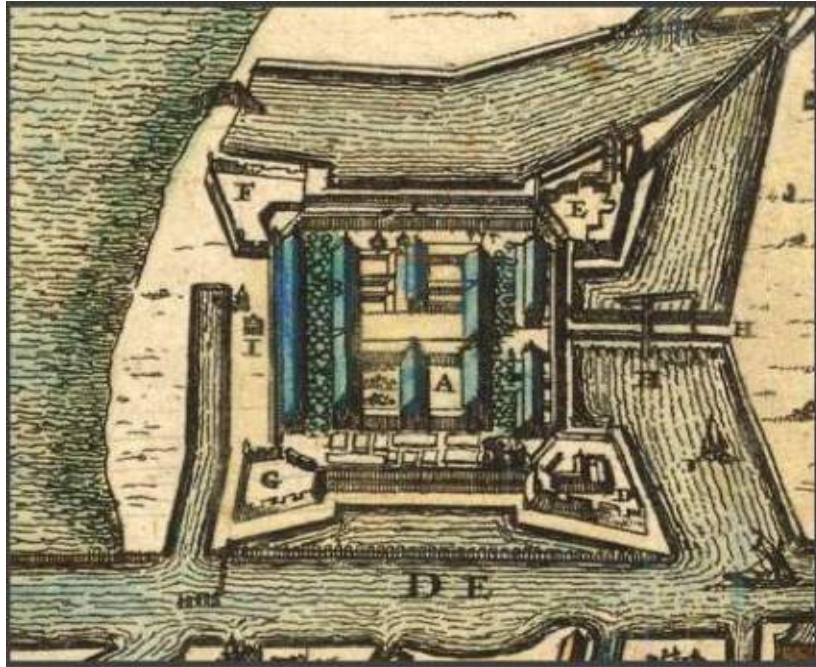
Historians all over the world expressed their opinion and they prioritized and selected archive series from the enormous amount of the collections at ANRI. These selections were proposed to ANRI and included in both signed Memorandum of Understandings. These experts selected archive files for reasons of academic interest, uniqueness (in some cases no copies elsewhere), and suitable for recording digital database entries.

In her daily operations ANRI contributes in an important way to the safekeeping of these old Dutch documents in a great variety of archive series, which sometimes are elsewhere not to be found!

The DASA project then focused on the following archive series:

- Daily Journals ("Dagh- Registers van Batavia")
- General Resolutions ("Net-Generale Resolutieboeken")
- Appendices to the General Resolutions ("Bijlagen Net-Generale Resolutieboeken")
- Inlandse Vorsten
- Secrete Resoluties
- Besogneboeken
- Personalia and Realia
- Buitenkantoren, Handel and Justitie.

In this globalized age, the international exchange of views and transfer of knowledge to people and institutions is vital. It also facilitates compliance to international standards of sustainability and accepted professional archival norms. Digital reproduction makes it possible to capture and record the current vulnerable physical archive into high resolution scans, and offer researchers worldwide access to these scans via the internet.

DASA encouraged historical web research of these important archives through a publication process of indexing, creating and presenting metadata together with JPEG- scans of the original manuscripts via https://www.sejarah-nusantara.anri.go.id.
To reach a broad audience of international scholars worldwide, the website was created in two languages, Bahasa Indonesia and English, and thus became a very important and strategic asset of ANRI to portray its archival mission and vision.

The website https://www.Sejarah-Nusantara.angi.go.id is a great success and appreciated by her users. Around 1400 registered users around the world have visited the website over the past few years in order to view the published scans. A steady number of visitors come from Indonesia (about 85%) which emphasizes the importance of the website to the Indonesian public.

ANRI facilities include special cooled storage depots for safekeeping, and a state of the art "Restauration room" to restore damaged and discolored ("ink corrosion") documents.
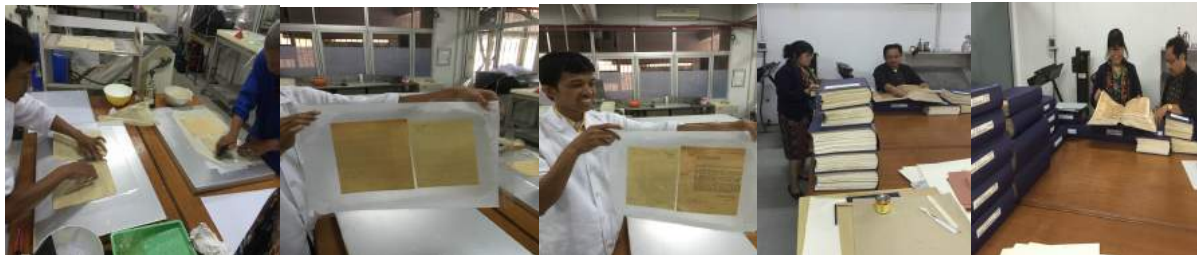
Besides the digitized and published archives, the DASA project has accomplished a lot more than just scanning and showing scans online. In particular the inventory of the archive of the High Government, important part of the VOC archives, was published in three languages online and connected to the scanned series.

The website also contains a "Harta Karun" section with 28 academic articles about a variety of subjects: *"Hidden Treasures on Indonesian and Asian-European History from the VOC-archives in Jakarta"*. Also, a glossary of selected terms from the archives was published online with descriptions in three languages and with etymology.

The 17 volumes of the so called "Plakaatboeken" were indexed and the 10.893 records published online in a searchable database. The Marginalia of the Daily Journals were published online in a searchable database with 117.390 records. The "Realia" were published online in a searchable database with 47.467 records. The first 1213 records of the Appendices to the Resolution books were published online in a searchable database. And last but not least, the six volumes of the "Corpus Diplomaticum" were indexed and published in a searchable database.

From the "Dagh-Registers" an important selection of 8.568 diplomatic letters were published online in a searchable database. Two books were published (as downloadable eBook) in Bahasa Indonesia and in the English language: "The Diplomatic Correspondence between Asian Rulers and Batavia Castle during the 17th and 18th centuries: The Digital Reconstruction of a Lost Treasure" and "The Diplomatic Correspondence between the Kingdom of Siam Asian and The Castle of Batavia during the 17th and 18th centuries".
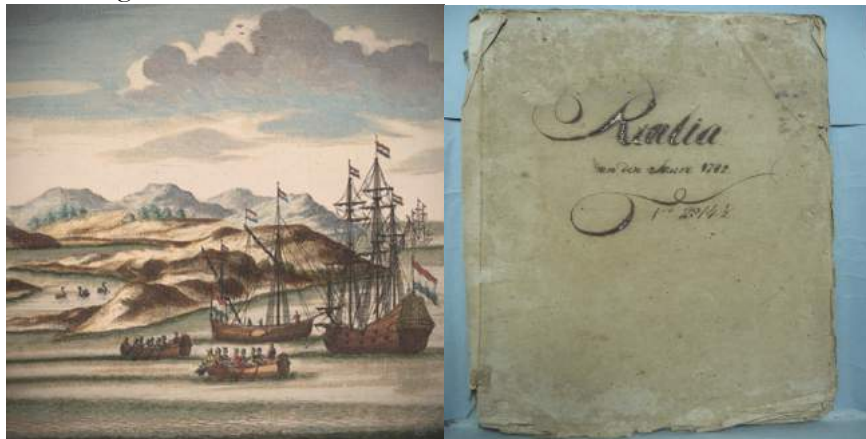
The diplomatic letters proved to be a treasure trove of incoming and outgoing Diplomatic Letters between Batavia Castle and Asian rulers and dignitaries.

These *"Surat Emas"* testify to the richness of ANRI's collection. It shows were and how Europeans adapted themselves to Asian diplomatic customs and the system of gift exchanges. Special visualization software on the website shows the diplomatic correspondence in geographic and social visualizations. In particular the option to time travel along the correspondence offers in a great variety in time of the diplomatic letters that were received and sent.

The selection of diplomatic letters that focuses on the diplomatic relation between the Supreme Government or "Hoge Regering" in Batavia Castle and the "Kings and Phrakhlang" of Siam in Ayutthaya was a spin-off of the first diplomatic letters DASA subproject. This subproject on the Thai letters was realized with assistance of two Thai scholars and the Chulalongkorn university in Bangkok: "The Royal Correspondence of the Kingdom of Siam with the Supreme Government of the Dutch United East India Company (VOC) in Batavia Castle 1634-1765".

Altogether these project results are substantial and impressive in its size and contents and provide an appreciated online digital history source for scholars around the world.
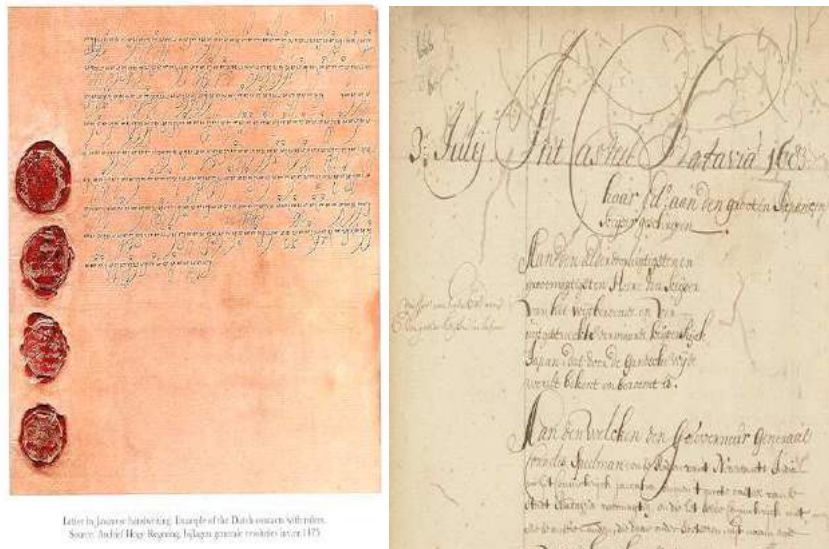
Letters to Javanese Rulers and the Emperor of Japan, as included in the Daily Journals.

Organizational and technical aspects

The DASA- project took a multi-disciplinary approach from the start to determine the way in which the different stake holders could be supported and what deliverables were feasible to achieve. A handwritten archive from the 17th and 18th century in the Dutch language offers starting points for disciplines in the archival, information communication, technical, historical, digital and physical preservation, linguistic, and paleographic field. The DASA project relied on

experts in all these very different fields for advice and contributions. We are very much indebted to the international network of enthusiasts and professionals who joined the project and made
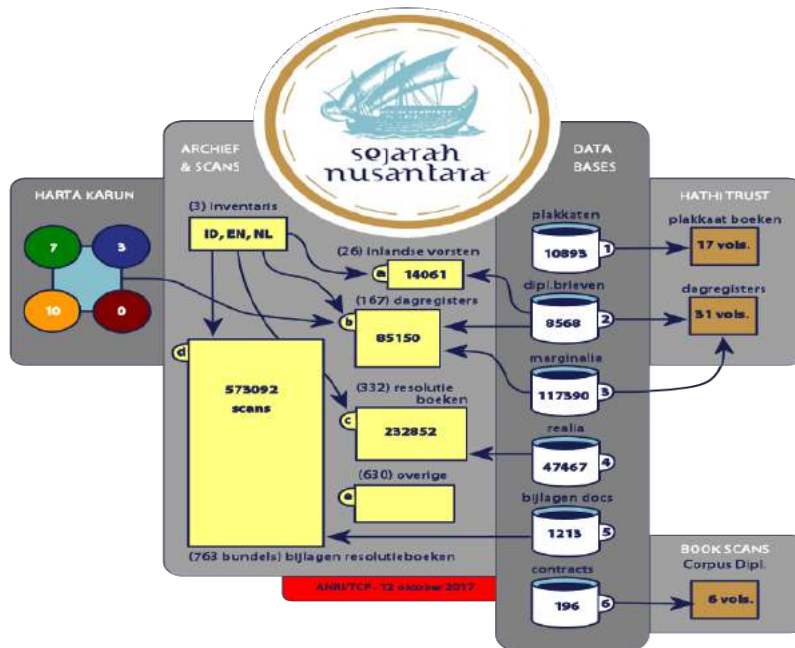
possible the deliverables of the highest quality.

The DASA- project formed a fine example of modern ways of project management with incremental milestones combined with contingency planning and long term digital preservation vision. Project partners aimed to meet the international standards of sustainability and accepted professional archival standards. Especially in the fields of ICT and records management, technology in our digital world is changing rapidly. Expensive hard and software are rapidly obsolete, while valuable documents deteriorate owing to the passing of time, climate change and pollution. Therefore, it is important to reflect upon common principles to safeguard investment, to save valuable time and to prioritize documents. Digital reproduction makes it possible to store original and unique vulnerable documents, while offering researchers easy access.

For these reasons, the DASA project applied modern ICT- standards and techniques while combining complex high-volume scanning equipment with our own developed unique tailor-made software. DASA hardware and software is based on general preservation imaging guidelines, such as 'Metamorfose light', and 'Open Archival Information System' business process modeling principals for the creation of digital records and metadata, as well as meeting of ISO 23081, ICA and EAD data exchange standards.

For the scanning of documents, TCF purchased two high resolution scanners ("Zeutschel") with dedicated storage equipment ("NEXSAN Sataboy" working storage system, and "FAST Silent

Cubes" long term archival preservation). Also, TCF installed a Local Area Office Network, a Scanning Network, a server room, and dedicated internet access. TCF installed a webserver to host the DASA system (website, repository, scan store, ICA-atom) at Pt TelkomSigma in Jakarta.

All archive materials scanned in the DASA- project were only handled by ANRI – staff at the Archives location in Jakarta. No bundle, no manuscript in its original form, nor in a digital format left ANRI. The JPG- and TIFF- images were stored at ANRI on the "FAST Silent Cubes", a JPG- copy of the scans was uploaded to the webserver only in order to be published online.

The DASA- system is documented for maintenance reasons and for contingency. All relevant aspects of hardware and software are described, a great variety of manuals, guidelines, instructions are available for scanning, publication, long term preservation, editing of inventories and the website contents. Monthly maintenance operations are described and transferred. This DASA system documentation has been handed over to ANRI for further usage and available at a secured centralized location.

Concluding:
"ANRI and TCF prepared a solid foundation for a continuation of the VOC Program by ANRI. New policies regarding the maintenance of hardware and software needs are to be made, including the sustainability of the "Sejarah Nusantara- website".
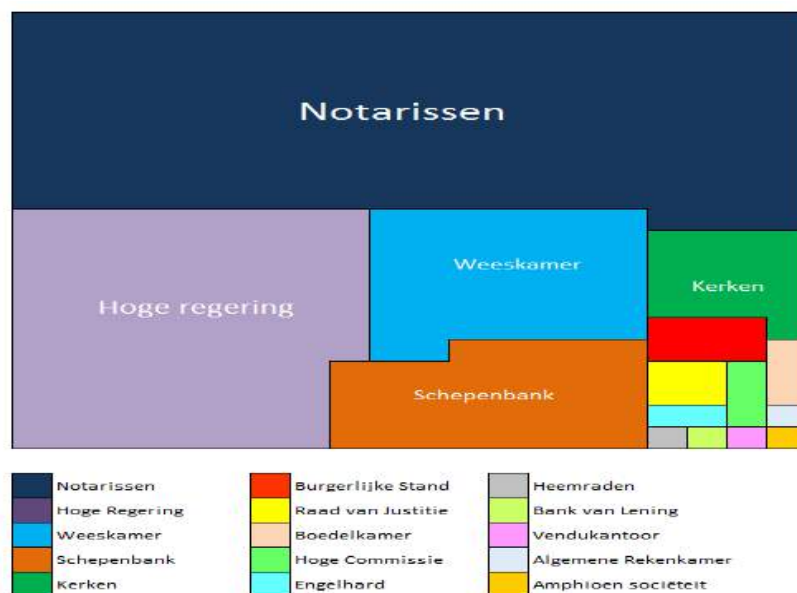
3. DASA Project Objectives and Project Deliverables.

Project Objectives

DASA was envisioned as a "Digital Preservation and Public Access Program" with a "DASA-System" to be transferred to ANRI (at the end of the project). The following objectives were stated:

1. Creating a "Digital Preservation and Public Access Program" for the period of the M.o.U. (2011- 2014 and 2014- 2017) to enable a joint cooperation of ANRI and TCF to digitally preserve and develop an archive publication system.

2. Preserving selected ANRI's VOC- archives by means of digital scanning and recording metadata.

3. Facilitating easy-to-use world-wide online internet- accessibility for the digitized archives. The enhancement and publication of digital archive information, by creating secondary entries, indexes, and digital inventories. Implementation at project ending with transfer of system, equipment, website and technology, and documentation to ANRI to safeguard operational maintenance of the DASA system in future.

ANRI and TCF were able to create the "Digital Preservation and Public Access Program" for the period of the M.o.U. (first term: 2011- 2014, and second term: 2014- 2017) to digitally preserve and develop an archive publication system. This was done in an incremental way, with yearly Project Plans and High-Level Project Planning, with yearly Program Board meetings, local project management, review by leading historians in Indonesia and the Netherlands and an international team of ICT- experts.

This has resulted in developing a "Data Archive System at ANRI- DASA"- system, which included: System Development, Preserved and Published Archive Series, Books, Databases, Indexes, Website Publications, Glossary and academic Presentations.

Project Deliverables
The project has delivered many results during the period 2011 – 2017. Besides the main focus on digitization and online publication of archival material, also a lot of databases and publications were created and published online.

1. - Digitized and published archives online

Archive series (number of bundles)	Executed	Scans published	Inventory numbers
[1] Dagh-Registers (167)	2012-2014	85.150	2457 ... 2623
[2] Net Generale Resolutie Boeken (317)	2013-2015	232.852	853 ... 1182, 4487
[3] Inlandse Vorsten (33)	2015	14.061	3567 ... 3593
[4a] Appendices Generale Resoluties (762)	2014-2017	572.586	1196 ... 1957
[4b] Generale Resoluties aanvullingen (1)	2017	506	4550
[5] Secrete Resoluties (29)	2017-2018	12.919	2000 ... 2028
[6] Besognes (generale and Secrete) (51)	2017-2018	28.995	2044 ... 2092, 2098 ... 2100
[7] Personalia and Realia (22)	2017-2018	6.434	2224 ... 2247
[8] Bijlagen Dagh-Registers (12)	2017-2018	1.725	2624 ... 2635
[9] Buitenkantoren (479)	2017-2018	209.056	3621 ... 4072, 4090, 4450, 4451, 4489, 4534, 4535, 4537, 4551, 4563, 4585, 4588, 4598, 4605, 4606, 4615, 4625, 4626
[10] Handel (33)	2017-2018	7.622	4260 ... 4289, 4517, 4552, 4561B
[11] Justitie (27)	2017-2018	4.133	4290 ... 4316
TOTAL (1933)		**1.176.150**	

2. - A Digital Inventory of the archives of "High Government/ Hoge Regering". The inventory was published online in three languages in EAD format, using the ICA-AtoM tool for recording multi-level archival descriptions according to international standards (Bahasa Indonesia, Dutch and English language). The inventory contains 4631 archive files.

This inventory was originally published as "The archives of the Dutch East India Company and the Local Institutions in Batavia" (BRILL, 2007), through collaboration between ANRI and

NAN with a contribution of TCF (in the years 2000- 2007). This inventory covers the period 1612-1811.

3. – Databases with entries to archival series and to archive publications

To facilitate easy access to digitized archive series and publications developed and published databases:	Number of entries	Published in
Marginalia to the Daily Journals of Batavia Castle, including indexes on ship names (7571), European person names (7337), Asian person names (7433) and place names (3574)	117.390	2013-2016
Realia to the Resolution and Besogne books	47.467	2014
Diplomatic Correspondence of the Daily Journals of Batavia Castle and Inlandse Vorsten, including indexes on person names (1763), place names (357)	8.568	2015-2016
Entries to the published Plakkaat books, including indexes on Governor-Generals (33)	10.893	2016
Entries to the series Appendices Resolution Books	1.213	2015 - 2017
Entries Corpus Diplomaticum 5 volumes, including indexes on area (34), person names (717), place names (1001)	1.198	2017-2018

4. – In total 28 "Harta Karun"- were published on the website concerning documents of the scanned archive series – in particular the Daily Journals – in multi lingual academic articles. These "Harta Karun"- publications form a real treasure room at the project website.
The "Harta Karun- section" is valuable for scholars and students and provides a platform for scientific publication. It is advisable to ANRI to continue creating these publications and initiate articles and contributions to this section in future. In particular an Indonesian hard copy series would be welcomed. It does require the assistance of historians to write scientific introductions as well.

Article topics in the website "Harta Karun"- section	Number of articles	Published in:
Marginalia to the Daily Journals	12	2013
Diplomatic correspondence (General)	5	2014 - 2015
Diplomatic Correspondence Kingdom of Siam	11	2015 - 2016

5. – eBook publications
The Diplomatic Letters project has resulted in two eBook publications, with a selection of "Harta Karun"- articles and introductions.
The first: "The Diplomatic Correspondence between Asian Rulers and Batavia Castle during the 17th and 18th centuries: The Digital Reconstruction of a Lost Treasure". (English).
The second: "The Diplomatic Correspondence between the Kingdom of Siam Asian and The Castle of Batavia during the 17th and 18th centuries". (Bahasa Indonesia, English).

6. - A Glossary of 620 terms from the 17th and 18th century, distilled mainly from the Marginalia by Dra. Mona Lohanda (ANRI). These terms from the old Dutch manuscripts were recorded with explanations in Dutch, Bahasa Indonesia and English. University Leiden / KITLV (assist. prof. Tom Hoogervorst) completed the etymology of these terms.

12. - Publication online of the map collection "De Haan", with scans and index (1165 entries).

13. – Workshops, trainings and presentations by TCF at ANRI about archival and technical information systems in particular "Archive Managements Systems", eDepot and long term preservation storage was organized during both MoU's. ANRI organized lectures about 17th and 18th century Dutch Paleography and Archive management in general.

14. – Promotion visits and presentations were held at the Universitas Indonesia, Universitas Gadjah Mada, Universitas Andalas, Universitas Diponegoro, and Universitas Hasanudin about deliverables of DASA.

4. Project assumptions, constraints, prerequisites, risk management

1. All project activities will be executed in accordance with both specified and signed M.o.U.'s with Program Directive.
2. The joint project is fully subject to all relevant Indonesian government regulations, approval and control
3. ANRI and TCF will be solely responsible for the implementation of a Digital Preservation and Public Access Program.
4. A Program Board as stated in the M.o.U. (representing both ANRI and TCF) will supervise the execution and accounting of project activities.
5. An Advisory Board will assist the Program Board consisting of specialists in old Dutch archives, digitization techniques and other relevant fields of expertise.
6. The Program Board may appoint special consultants (historians, archivists, image/database specialists) for the DASA- project.
7. The Program Board may request participation of additional partner organizations and companies to improve quality, efficiency and speed.
8. The Project will consist of incremental 'High Level' Project Plans and Planning's which will be phased in over time.
9. All 'High Level' Project Plans will be approved by the Director- General of ANRI, the Board of TCF and the Program Board.
10. TCF will be responsible for drafting a "mitigation plan" and inform management/ staff of ANRI and the Program Board of any relevant issues as addressed in mitigation/ contingency planning.
11. The essential cost of the project will be provided by TCF in order to maintain a continuous financial base for the project.
12. The project will comply with the formal administrative regulations of ANRI and TCF concerning projects, risk mitigation, offers and orders.
13. System, Equipment (including hard- and software) with ample documentation will be handed over by TCF to ANRI after concluding the project, or earlier when agreed by both parties.
14. All communications, public relations and publication of project materials will take place under the authority of ANRI.
15. TCF will take care that all proper taxes are paid in accordance with relevant Indonesian government regulations and a will employ an accountant and audit company based in Jakarta.
16. The project will follow international agreed open standards as 'Metamorfoze light', 'OAIS'-Business Process modeling, as well as meeting metadata schemes and other standards such as ISO 23081, ICA and EAD data exchange. By applying open standards TCF promotes digital sustainability, mitigate risk and safeguard contingency.
17. All manuscripts used in this project (single bundle, manuscript in hard copy or digital form) processed by ANRI – staff will not leave Gedung C.

Mitigation/ contingency planning.
During the course of this multi-year project the Program Board monitored all project risks. In the annual incremental Project Plans project team members were made responsible for reporting to the Program Board any risks encountered that might have an influence on costs, progress or planning. Risks can vary in nature and may relate to technical, budgetary, planning, and resource aspects. All incidents will be logged in a log-file which will be drafted by the project team.

In particular, we discerned the following risks and contingency measures:

political	misunderstanding concerning the nature of project activities	transparency, communication by ANRI to government departments and media
legal	labor contract issues	communication with accountants and legal advisors
personnel	lack of staff personnel withdrawal of project team members	specification of required assistance transparency; periodic assessment
ICT / technical	defects in hard and software misunderstandings / poor coordination with Indonesian technicians	manuals, training, documentation more attention / proactive coordination
software development	functional defects and mistakes	specification of requirements proper test procedures
financial	lack of funds poor bookkeeping	external accountant for monthly bookkeeping, external yearly auditing, job descriptions, functional dividing lines
production	Lack of product planning	process scenario planning incident management / helpdesk
quality of work	mistakes, inaccuracies wrong interpretation / descriptions lack of	job descriptions double check of content peer review
back-up	mistakes in storage, loss of storage	proper back up procedures, sufficient backup media
acts of God	flooding, lack of electricity	relocation of DASA team, external storage of TIFF- and JPEG – copies.
availability of website	poor uptime loading of website or slow performance	SLA with hosting provider PT Telkom Sigma incident management / helpdesk
quality of website	poor usability does not appear in Google search results	evaluate with usability test analyze SEO
criminal	hacking website / office network misuse of DASA funds abduction of archive	proper up to date anti-virus software financial control

5. Project Timeline

July 8, 2009:
- Proposal by TCF to D-G ANRI to develop a "VOC Excellence Centre" at ANRI

December 9, 2009:
- Invitation by D-G ANRI to establish a long-term commitment for cooperation between ANRI and TCF to preserve and make available public access of VOC- records kept at ANRI. Dr. Henk Niemeijer is invited to prepare a meeting and draft a preliminary programme.

Augustus 22- 29, 2010:
- Visit Treasurer TCF, drs. Hans Harting, and SecGen TCF, Mr. Joan Snellen van Vollenhoven, to ANRI to propose a High-Level Project Plan. 2011 – 2015.
- Presentation to Indonesian Foreign Office, Jakarta.

December 2 - 4, 2010:
- Presentation at KEMLU in Bandung by Treasurer and SecGen. TCF.

December 29, 2010:
- Project Approval by KEMLU. TCF is registered as NGO.
- Draft of first selection of Archive Series and start development entries to the "Realia" by dr. Henk Niemeijer.
- Dra. Mona Lohanda started transcribing "Marginalia".

May 18, 2011:
- Formal Signing first M.o.U. and Program Directive by ANRI and TCF.

May 20 and 27, 2011:
- First and Second Program Board meeting opened by Mr. Mustari Irawan, Chairman *pro tempore*.
- Project start of the Selection of series "Dagh-Registers" and the Resolution Books. The project aims: to save the content from the Volumes beginning in 1683; to develop Secondary entries; Document selection; Transcription (of documents) & translation.
- Mrs. Mona Lohanda transcribed some 4.000 pages for the 1683-1760 period of Marginalia-texts in the Dagh-Register volumes. This secondary entry will be inserted in a huge database with search possibilities and linked to the digital images of the originals.
- Tata Bisnis Solusi realized on behalf of TCF – during the preparation period- a subject index to the Resolution Books by scanning, OCR, and manual correction. Mr. Roling processed some 50.000 entries (2.000 key words) into a database.
- Apart from these two main VOC-series, a special selection of documents will be created on Asian and Indonesian history, a so called "island of treasures" or 'Harta Karun'.

- A Content Team will be realized with Team Lead Mrs. Dra Risma Manurung MAP, which will work on several aspects of content preparation:
  - making a survey of Resolution Books including physical conditions
  - making of transcriptions of selected documents for the 'Harta Karun' collection
  - making of transcriptions of the content registers in Resolution Books
  - database entry work (Marginalia on the Dagh-Registers)
  - literature & picture research
  - coordination of translation activities.
- Presentation of a High-Level Project Plan by TCF.

May- September, 2011:
- Development of a Graphic Demo for a digital archive system: "DASA" by Dutch firm Hic & Nunc.
- Drafts: "Metadata for DASA"; "Generic basis for metadata in DASA products with Data Model Diagram DASA".
- Draft "Information and information systems"; "EAD course and its future use at ANRI".
- Draft "The ANRI and Corts Foundation Project on digitization of Dutch Archives of the 17th and 18th century".
- Draft "Requirements Specification on Scanning (RSS)".
- Draft "DASA 1.0 Software Requirements Specification (SRS)".
- Draft "DASA 1.0 Decision model preparation Digitalization".
- Draft "Information Analysis Marginalia and Daily Journals".
- Draft "Information Analysis Realia and Resolutions".

September 28, 2011:
- Third Program Board meeting.
- Installation of an independent Chairman of the Program Board, Prof. Dr. Bambang Hidayat: "The challenge ahead is substantial, but 'to uncover the past, we will meet the future". More importantly, "we have to learn from the past". This project will be done 'in the name of progress of science'. Prof. Hidayat also remarked, that 'we have more to unlearn then to learn' when we study the past.
- Confirmation of Requirements Specification on Scanning (RSS)" and "DASA 1.0 Software Requirements Specification (SRS)".
- Selection scanning equipment, office network and internet with local providers in Jakarta.
- TCF drafts "Request for Proposals- RfP".
- Software application. Hic et Nunc delivered a successful Graphical demo in November 2011. Final Go from ANRI: January 17 2012.
- Visit TCF providers scanning equipment in Singapore and Kuala Lumpur.
- Reconfirmation of the Formal Decision on Selected Series of Dagh-Registers and Resolution Books.
- Presentation and survey of digital sustainability systems.
- Basement in Gedung C will be made available for project team.

December 1, 2011:
- Final installation of project team in office rooms in the basement of Gedung C.

February 17, 2012:
- Fourth Program Board meeting.
- Presentation Offers / Request for Proposals infra structure and equipment
  RfP. network, servers, computers, printers. Final Go: 2012.02.28. Invited providers: Tata Bisnis Solusi; ELO Digital Office, PT. Tele Nusantara.
  RfP. A-1 bookscanners based on "Metamorfoze Guidelines version 1.0 quality category 2 Metamorfoze Light". Quality check according to the "Universal Test Target chart - UTT"). Invited providers: Tata Bisnis Solusi; ELO Digital Office. Final Go: April 2012
- RfP. Technical Coordinator DASA Project. Final Go: 2012.02.17. Invited provider: PT. Tele Nusantara Visi.
- RfP. Glass fiber Jalan Ampera Raya No. 7 – Building C/ Internet Provider. Invited provider: Biznet. Final Go: 2012.02.17.
- Registered: Domain name: www.serajah-nusantara.go.id .Final Go: 2012.02.17.
- Proof of Concept development Project website. Invited Provider Telegraph Creative Lab. Final Go: 2012.02.28.
- Draft updated SRS document with comments on graphical demo by Marco Roling: 2012.02.17.
- Presentation Draft Metadata for DASA. "Meta Data for DASA, Generic basis for metadata in Dasa products" version 1 February 2012 by Frans Smit.
- Migration Realia Access db. In 2010 preliminary preparations were made by Tasa Solusi/ Kedik to realize in Word an overview of scanned REALIA. Marco Roling migrated WORD data to an Access db. Given the importance of a proper Realia- finding aid, it is considered important to migrate the current Access database in a to be developed MySQL/ PHP -application.
  P.B. approved analyzing possible migration.
- Recruited Mr. Eko Martanto as technical manager and coordinator with "Creative Lab".
- Started development "Harta Karun- Gallery".
- Naming of our project: "Digital Archive System at ANRI – DASA".

May 31, 2012:
- TCF terminated relations with Mr. Martanto and with "Creative Lab/ Telegraph".

July 5, 2012:
- Fourth Program Board meeting.
- Draft "Proof of Concept DASA system 1.0."
- Final decision selection local providers equipment.

October 8- 9, 2012:
- Visit DG- ANRI with staff to Netherlands; visit "Corts House" in Enkhuizen.

<u>October 10, 2012:</u>
- Installation first "Zeutschel OS 14000 A1" with accessoires, UTT test- chart and software, file server, computers, Eizo monitor and netwerk.
- Development by Hic & Nunc of DASA Repository V1.0 for use by DASA Scan- en Content team.

<u>November 6, 2012:</u>
- Fifth Program Board meeting.
- Installation of DASA- Advisory Board.

- Training at ANRI of Scanning personnel by Mr. Hans van Dormolen.
- Presentation at ANRI by TCF's Frans Smit of an Archive management System.

<u>December 1, 2012:</u>
- Formal approval staffing Content and Scan team.
- Start pilot workflow scanning.
- The DASA- system now encompasses a central data storage ("Repository"), ICA-AtoM, a "Scan store" and website.

<u>March 18, 2013:</u>
- Sixt Program Board meeting.
- Mrs. Mona Lohanda concluded transcribing the Marginalia. She now will start publishing preparations for the Plakkaatbooks.
- The Content Team concluded "Re folio- numbering" of the Appendices of the Resolution books, an essential task before scanning.

- TCF drafted a "Request for Proposal" for hosting the website by PT Telkom.
- The Board prioritised progress on Public Access. All board members are of opinion that the launching of the DASA website should be realized without any delay.
- A new version 1.2 of the "Scan Store" is already finished and tested. A further testing is necessary with the scans of a few archive bundles of Dagh-Registers before going online.
- The Board approved the website name as "Sejarah Nusantara", because the "Early Modern Period 1500-1800" still bears several characteristics of the old world of pre-colonial Nusantara. If ANRI wants to develop a website in the future, that also entails the later period, perhaps Sejarah Indonesia is also feasible.

April 29 – May 3, 2013:
- TCF training at ANRI by Mr. Frans Smits and Mr. Roling concerning archival management systems and the DASA system.

July 1, 2013:
- Installation second Zeutschel OS 14000 A1.- scanner.

September 23, 2013:
- Seventh Program Board meeting.
- Designer Anton Feddema produced new logo's for the The Harta Karun Selection and the website.

sejarah
nusantara

He also made a template for the Harta Karun publications. Beny Octavianto (publ. dept. ANRI) installed the "InDesign- application" and will be responsible for the lay outing of the articles. Dr. Peter Carey has started with the final editing of the first batch of 10 articles.
- Status of Historical databases: Marginalia I, covering 1682-1708 (2050 pages), are already visible online. The second file, Marginalia II, covering 1709-1806 is under construction. Marginalia III: Mrs. Mona Lohanda has finished the transcription of the Marginalia from the volumes of 1659s up till 1682. Historical database Plakaatbooks. Dra. Mona Lohanda began with the database by ascertain the titles of the decrees ("The Plakkaten") of all 17 volumes of published decree books.
- The Scanning Team concluded all Dagh-Register volumes (approx. 80,000 images). External back- ups of scans were realized on external HD's in Gedung B and Gedung F.
- The delivered second scanner stopped owing technical software problems. The QM Tools software had to be re-installed. After the scanning of 3,000 folio's, a quality check was performed at ANRI by Mr. Hans van Dormolen, who earlier advised to stop scanning on this apparatus.
- Preparing a draft for a second M.o.U./ Program Directive.

September, 27 2013:
- Launching of website Sejarah Nusantara, https://www.sejarah-nusantara.anri.go.id , at the conference of the Southeast Asia Regional Branch of the International Council on Archives (SARBICA) in Bandung in the presence of Mr. Ir. H. Azwar Abubakar, Secretary of the Kementerian Pendayagunaan Aparatur Negara dan Reformasi Birokrasi, "MenPan".
A short multimedia presentation of the DASA- project, developed by PT Andrea Bennito, is presented.

October 1, 2013:
- Second scanner in operation after repairs by Zeutschel AG in Germany and MicroImage ltd. In Singapore. Mr. Van Dormolen approved the quality of the first scanner too.

December 1, 2013:
- ANRI and TCF approved contract webhosting Pt. Telkom. TCF drafted elaborate hosting maintenance contract with an elaborate "Service Level Agreement".
- Migration DASA system to webserver Pt TelkomSigma with all digital files and software.
- Draft "DASA Scan Operations Manual" and "DASA Scan Store Operations Guide".

March 5, 2014:
- Meeting Advisory Board.

March 7, 2014:
- Eight Program Board meeting.
- Two more "Harta Karun"- articles were published on the project website.
- Historical databases. "Marginalia II" (1709-1806) completed and uploaded on the website.
- "Diplomatic Letters Sub- Project": This special database of all diplomatic letters from Indonesian and some other Asian Rulers to Batavia Castle and the Supreme Governments replies covers the period 1683-1745. This will be made visible on the website.
- Plakaatbooks. Dra. Mona Lohanda has steadily worked on the database with titles of the decrees of all 17 volumes of published decree books. Fourteen volumes have been inserted.
- The Content Team prepared 126 "Re folio numbered inventory numbers" of Resolution Books for scanning. From these 126 volumes, eight volumes could not be handled because of damage.
- Mr. Maarten Manse of Leiden University designed a separate database of diplomatic letters in the Dagh-Registers, using the marginalia database.
- Mr. Marco Roling presented the "DASA Operation Management Guide". It provides for a daily monitoring of the network.

<u>October 10, 2014:</u>
- Ninth Program Board meeting.
- For the visualization of the Diplomatic Letters database TCF proposed to acquire special software "Nodegoat" from Lab1100, a firm located in the Netherlands.
- The software team of Mr. Marco Roling in the Netherlands developed a "watermark" for the website. The image can be changed easily. This small watermark is a solution according to international standards. This is not a watermark for "government documents", but one for cultural heritage manuscripts, which is not interfering with the text in any way.

- TCF drafted an "Request for Proposal Storage" for quotations of a long term archival scan storage system. Several parties and institutions in the Netherlands were contacted to ask for advice and to provide a quotation. This has led to a report that has been communicated with ANRI. The report suggests to buy and install a safe and scalable storage system of the German company FAST. This storage system can be incorporated into the scan network at ANRI, to permanently archive the scan images.

<u>October 15, 2014:</u>
- Signing Second Memorandum of Understanding/ Program Directive by ANRI and TCF.

<u>December 10, 2014:</u>
- The selected tool "Nodegoat" of the Dutch firm Lab1100, to present geographical and social mapping of the Diplomatic Letters, was installed at the website.

<u>March 10, 2015:</u>
- Tenth Program Board meeting. The meeting started with the signing of the formal document concerning the handover of the digitalized records scanned in 2013 and 2014.
- A special archival storage system is presented by TCF: "Fast Silent Cubes".
- The "Badan Pemeriksa Keuangan BPK" will audit the DASA project and financial and project details will be forwarded to the BPK on the basis of the financial Reports of "LF Consultants".
- ANRI created a "Pusat Data Information- Pusdatin". This "Centre for Data Information" is focussed at integrating system and applications of archival systems. TCF forwards all project and system documentation to Pusdatin.
- ANRI offered a new back storage space for DASA's DATABOY storage system in Gedung B.
- "Harta Karun" Document Selection, Translation and Publication: Five Indonesian diplomatic letters and three Siamese Royal letters were published on the website in January 2015.
- Diplomatic Letters Project I. This special database of all diplomatic letters, from Indonesian (and some other Asian) Rulers to Batavia Castle and the Supreme Governments presented on the website. Eight "Harta Karun" articles were written about these letters and published on the

website. They were also bundled in a 154 pages PDF document, available as download on the website.

- Historical database "Plakaatbooks". This database with 10.893 titles of the decrees of all 17 volumes of published placard books has been finished and published on the website in January 2015. Five webpages were created, and the website search was extended. All placard books were already digitized by other parties and available on the website of www.archive.org. Permission was obtained to embed these online publications into our website and we created seventeen web pages for this.
- Historical database "Resolution books". The digital inventory in ICA-AtoM has been extended with the archival descriptions of the 330 bundles of Resolution Books. This has been done in three languages (ID, EN, NL) and has been published on the website. Also scanning of the 330 bundles has been finished in November 2014. Two webpages were created, and the connection between the Realia and the scans of Resolution Books has been technically implemented.
- The ANRI domain 'ANRI.GO.ID' has been moved to Telkomsigma, which resulted in adjustments to the info desk email address of sejarah-nusantara@anri.go.id.
- A test version of the watermark on JPG images has been implemented in the website and is made configurable.

May/ June 2015:
- ANRI supplied 3TB NAS for temporary storage of scans and/or backup.
- TCF bought 2x2TB hard disks for temporary storage of scans and/or backup.
- Due to lack of scan storage TCF ordered to buy a SEAGATE NAS 4-Bay 16TB.
- Contract TCF with TelkomSigma (until May 2016) and storage extension from 500GB to 1TB and SLA, agreed on monthly reporting on the webserver performance, online monitoring remains possible.
- Order by TCF with BERCA on DASA LAN check-up, antivirus update, new printer.
- Diplomatieke brieven II: 10.000 brieven, 1659-1811 completed.

December 11, 2015:
- Eleventh Program Board meeting.
- The digital inventory (DASA ICA-AtoM) has been extended which means the project now has 1432 inv.nr. of the printed BRILL inventory of the archives of the Supreme Government of Batavia in an online digital inventory management system. This is 31% of the total number of inventory numbers in this archive.
- The online publication of the Resolution Books has been finished. All 232.888 scans and 330 bundles are accessible online.

Series "Inlandse vorsten". This series "Indigenous Letters" (period: 1750-1812) had 14.297 folio in 28 bundles. The scanning and online publication of this series started in September and finished in November. They can be accessed through the digital inventory, and some through the Diplomatic letters database.
- Glossary. Drs. Mona Lohanda translated 233 items from Old Dutch in to English.
- Diplomatic Letters Project II. This special database of all diplomatic letters from the Daily Journals of Batavia Castle has been finished in November 2015.
  A PhD student from Leiden, working at Universitas Gajah Mada, Simon Kemper, made a database of letters, which can be identified in the published Daily Journals (the Daghregisters van 't Kasteel Batavia published by the Landsarchief / Bataviaasch Genootschap, covering 1624-1682).
  Marco Roling did extensive data quality control, database design, and technical lead, Jelle Gerbrandy programmed the web publication pages, and LAB1100 adjusted the visualizations.
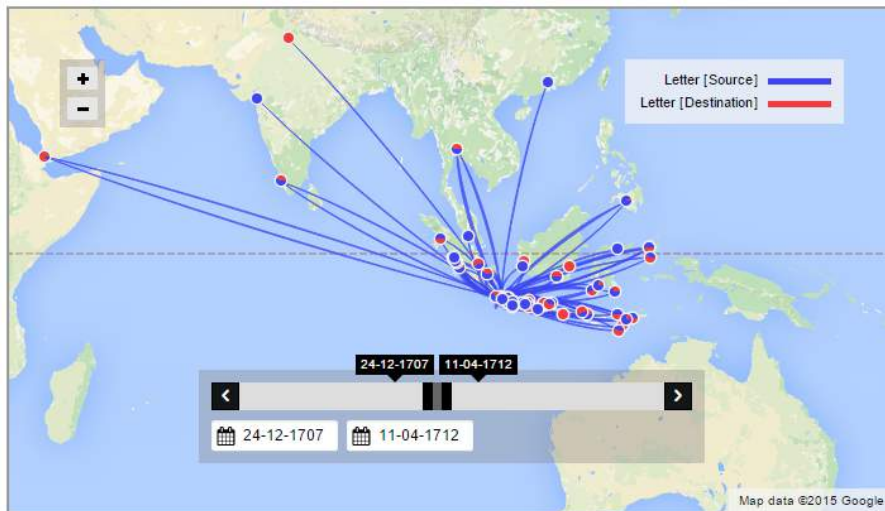
April 1, 2016:
- Installation of a "FAST Silent Cube 32/48 Terra Byte storage system, procured by TCF from Comex Bv. in the Netherlands. Every storage unit contains 12 hard disks from three different hard disk manufacturers. All DASA- data will be migrated from various storage containers as hard disks, SATAboy and NAS.

April 4, 2016:
- Paid by TCF a report was drafted by NAN: "Survey findings VOC bundles at ANRI with recommendations regarding possible rebinding" by Gerrit de Bruin and P. Magendans. This concerned rebinding of volumes which had to be dissembled before scanning.

April 5, 2016:
  - Draft paper regarding a DASA sustainable storage solution by Marco Roling.

April 7, 2016:
- Twelfth Program Board meeting.
- The Marginalia of the "Daily Journals of Batavia Castle 1624 – 1806" are now completed. The total size of the Journals amounts to approximately 90.000 pages. In the 1990's Mrs. Mona Lohanda started inventorying the Marginalia. The complete transcription of 17th century, roughly around 760 out of 5000 pages.
- Start of Diplomatieke brieven III: 11articles regarding Royal Thai Diplomatic Correspondence.
- Start preparing publication six volumes Corpus Diplomaticum by Fanada Sholiha (UNDIP).

- Master Cube of Fast Silent Storage system installed in Gedung A. The Slave Cubes are installed in Gedung B. Both Cubes will run on their own UPS and are controlled by two available workstations (WS01 and WS02).

May 16, 2016:
- TCF transferred webserver contract of Pt. TelkomSigma to ANRI.

June 15, 2016:
On request of ANRI the "download button" of the "Scan viewer" disabled.

August 13 2016:
- Dr. H. Niemeijer left the DASA- project. Dra. Risma Manurung MAP takes over as General Team lead DASA- team".
- An update of all documentation of the DASA system has been transferred to and shared with ANRI's ICT department.

October 16 2016:
- On request of ANRI the "save as image...- option in the right-click mouse menu has been fully disabled.

November 15, 2016:
- Presentation at the Dutch Trade Network Conference in Ayutthaya of "The Royal Correspondence of the Kingdom of Siam with the Supreme Government of the Dutch United East India Company (VOC) in Batavia Castle 1634-1765".

November 22, 2016:
- Thirteenth Program Board meeting.
- TCF presents a Project Plan 2017: "Year of transition starting 01.01.2017" with attention for a "Transfer of all operational responsibilities", as "proof of the pudding is in the eating".

  The transfer concerns:

  1. Software Components (ICA-Atom, Scan store, Website, Repository) including data
  2. Domain Infrastructure on ANRI.GO.ID
  3. Webserver Infrastructure (PROD at PT Telkom)
  4. Scanning Infrastructure (Network, scanners, storage)
  5. Local Area Network Infrastructure (computers, file servers, cabling, internet access, printers).

Types of Maintenance Processes to deal with:

1.Operations (daily production of scans, metadata, web content)
2.Backup and security (Data backups, recovery procedures)
3.Monitoring (daily quality checks, prevent incidents)
4.Incidents (info desk, ticketing)
5.Support (training, best practices, user guides, documentation)
6.Configuration and Change
  –platform software versions
  –customer software changes
  –hardware upgrade
  –licenses.
  –scanner maintenance.

Identified Roles and Responsibilities:

1.DASA System Operators (Content editors, Scan operators)
2.DASA Info desk (General First Point of Contact)
3.DASA System Administrators (ICA-AtoM, Scan Store, Website)
4.ANRI System Administrator (domain ANRI.GO.ID)
5.DASA Network Administrator (Webserver, Scan network, LAN).

- The Harta Karum- section now numbers a total of 28 articles: twelve articles based on different Marginalia Dagh- Registers; eight articles based on Diplomatic letters in general, and eight articles based on Diplomatic letters Siam.
- Web storage was extended from 1TB to 1,5TB in August 2016. The upgrade of the webserver to Ubuntu16 was performed in October 2016.
- Three workstations that previously were not equipped with Kaspersky antivirus were adjusted and protected with the latest versions. The scan network was connected by a switch to the LAN, in order to establish a connection to the Cubes in the server room, located in another building.
- At request of TCF several VOC- experts drafted a unanimous proposal for unique manuscripts that will contribute to DASAs current "main core / back bone" of the VOC- archives at ANRI. In particular: Appendices to the Daily Journals (inv. no. 2624-2635); Justitie (inv. no. 4290-4316); Handel/ Trade (inv. no. 4260-4289); Buitenkantoren/Branch Offices (inv. no. 3621-4072). ANRI agrees with this proposal considering their contribution to the already scanned archive series.
- Periodic maintenance and repair of both scanners was done by MicroImage ltd in Singapore. They are the sole distributor of these specific high quality high volume scanners. We experienced in the last years that it is a prerequisite to employ fully qualified technical and skilled maintenance personnel with the required technical maintenance instruments.

March 6, 2017:
- Fourteenth Program Board meeting.
- Scanning of the Appendices to the Resolution Books has been concluded, with a total of 574.629 documents scanned.
- The status of the storage solution of DASA, the "Fast Silent Cubes", was improved by repair and final tuning by Comex BV. from the Netherlands. A new maintenance contract was arranged and procured by TCF.
- Given the importance of transfer of knowledge, presentations and instructions were realized at ANRI by Mr. Axel Booltink (managing director of Comex BV.) and our ICT- advisor Mr.

Marco Roling. In particular much attention has been paid by TCF and Comex in developing a dedicated "DASA- data migration tool" to facilitate data transfer to the Cubes.

June 08, 2017:
- Academic review of archival databases, digital inventories, and drafting of additional descriptions was done by four students Hanna te Velde, Doreen van den Boogaart, Lydia van Wijk, Fenna Ytsma of Leiden University and assistance of two lecturers from Leiden, Ms. Alicia Schrikker and Mr. Lennart Bes.

October 19, 2017:
- Last and fifteenth Program Board meeting.

- The Program Board remarked that the excellent cooperation between ANRI and TCF resulted in 1,1 million documents which were scanned in "Metamorfoze quality".
  This is the same standard the US library of Congress requires for their digitally archive series preserved for the long term. Moreover, the documents were made accessible through the project website https://www.Sejarah-Nusantara.angi.go.id.

In addition, books were published in Bahassa Indonesia and in the English language. All scanning has been finished now. However, the Program Board allowed to safeguard additional sets of archival series in the spare time of this M.o.U.
This meant the team was able to scan an additional 200.000 manuscripts, which required a final project process of describing, translating and publishing of these last series to the project website in five months.

During both M.o.U.'s all manuscripts were processed by ANRI – staff in the basement.

The "time- travel tool" in the "Harta Karun"- articles section offer -in a great variety of time zones -sent diplomatic letters. It is noticed, that this presents in practice a great attraction.

The Diplomatic Royal Thai Correspondence in Thai language has been translated and now is in the final process of publication thanks to the cooperation of the Chulalongkorn University in Bangkok.

Extra scanning efforts by the team of Mr. Seno resulted in finishing of "Besognes, Secrete Resolutions, Personalia, Buitenkantoren, Handel and Justitie" just before this last Program Board meeting.

Director Mr. Thomas Foo of MicroImage ltd in Singapore stated that both Zeutschel A-1 scanners are in a superior condition thanks to the continuously good care and attention by Mr. Seno and his team.

On top of several ICT- trainings which were presented at ANRI in these years, TCF concludes DASA with a last ICT-training. This will be done on the basis of an extended "Document Dropbox- folder" which will be accessible to ANRI's DASA ICT – staff. As soon as the contents of this folder is learnt by heart, it will be put into practice in a special "hands- on training" that Mr. Marco Roling will organize.

Moreover, TCF has stated, that for the time being, an "After Sales Service" will be acknowledged. This implies, that if on the short run problems might arise, TCF will assist ANRI by keeping the DASA software up-to-date with the system software components, so that in particular the project website https:// www.Sejarah-Nusanta.anri.go.id and also the "Scan store" will be in full swing.
In this "Document Dropbox – folder" TCF painstakingly describes all relevant aspects of DASA's hard and software.

ANRI agreed to adept the current status of the watermark. In this way there will not be presented on the text of the document a watermark on the screen.

Finally, a user-friendly data migration tool to facilitate the migration of data from the "Sataboy storage equipment" to the "Fast Silent Cubes" has been developed by COMEX ltd, tested by Mr. Marco, and put into production. A revised manual of this adapted tool has been written by Mr. Axel Booltink of COMEX ltd and Mr. Marco and inserted in the Document Dropbox – folder".

6. Project organization, staff and personnel.

The project organization was constituted of units according to the following organization chart:
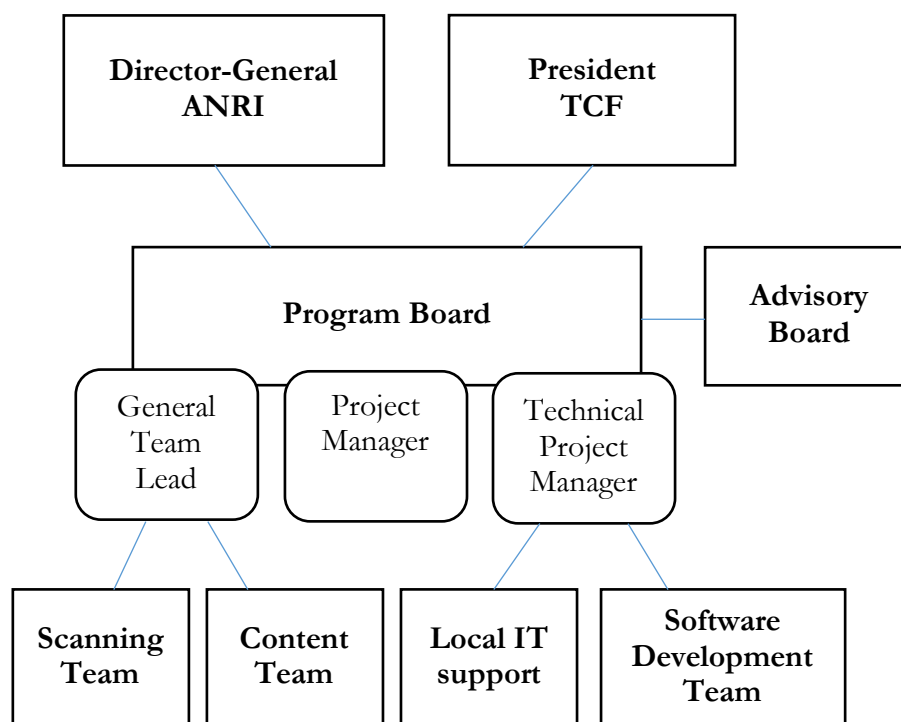
The DASA- project was sponsored by the successive Director- Generals of ANRI: Mr. M. Asichin and dr. Mustari Irawan MPA, and on behalf of TCF Mr. Egbert Jacobs, chairman.

DASA-project organization structure consisted of a Program Board consisting of Members of the Boards of ANRI and TCF, and additional staff when necessary.

Under the guidance of an independent chairman, Prof. Dr. Bambang Hidayat, recent Members of the Program Board who steered this project were: Dr. M. Taufik, M.Si, Deputy of Archives Administration, and ANRI staffs: Mr. Sumrahyadi, General Secretary of ANRI; Drs. Imam

Gunarto, M.Hum Deputy of Information and Development System; Dr. Kandar, MAP, Director of Archives Preservation; Drs. Azmi, M.Si, Director of Archives Arrangement and Description; Mr. Agus Santoso, Director of Archives Services and Utilization; Mr. Saptono Edi, Head of Archives Reproduction and Digitization; Dra. Multi Siswati, Director of General Affairs); Mr. Syaifuddin, SE, MM, Director of Planning and Public Relations; Mr. Dhanis Sugiharto, S.Kom, Head of Archives Restoration.

The Program Board was supported by an Advisory Board, chaired by Prof. Dr. Ing. Wardiman Djojonegoro, made up of leading Indonesian and international historians: Prof. dr. Singgih Tri Sulistiyono (Univ. Diponegoro), Prof. Bambang Purwanto (Univ. Gadjah Mada), Prof. Susanto Zuhdi (Univ. Indonesia), and Prof. Dr. Peter Carey (Oxford Univ.).

Daily operational management and project administration was in the hands of the General Team-lead Dra. Risma Manurung MAP and the SecGen. of TCF Mr. Joan Snellen van Vollenhoven, while TCF's ICT advisor Mr. Marco Roling BA, was responsible for technical project management. From 2011 to 2016 dr. Henk Niemeijer was employed as General Representative of TCF in Indonesia and responsible for historical research.

Daily operations were performed by a Scanning Team and a Content Team, located at ANRI. The Scanning Team with Team Lead Seno Herwadji, ST, archivist, coordinator, was in charge of the scanning of the archive bundles with two Zeutschel A-1 Omniscan scanners, quality control, storing scan files on special long-term preservation storage systems, and uploading to the webserver for further publication.

Members of the Scanning Team were Mr. Hadi Susono, A.Md; Mr. A. Hamid, S.ST.Ars; Mr. Eko Purwanto, Mr. Mr. Kurniawan Budi S, S.T, M.T ; Mr. Samsudin, S.Sos; Mr. Muhamad Muji Amin, A.Md.; Mr. F. X. Ariyanto Adibowo Sukowati, A.Md, Mr. Edi Mardianto, S.ST.Ars; Mr. Parno Nusantara, S.T, M.T.; Mr. Madris, S.Sos; and Mrs. Fitra Yeni, S.Si.

The Content Team, run by Dra. Risma Manurung MAP (Archivist, Coordinator of Content Team) focused on the management and online publication of archives and the publication of web content. Other members of the team were Mrs. Yeni Dwi Novelawaty, S.Hum; Ms. Ghesa Ririan Mitalia, S.Hum. and Jajang Nurjaman, S.Hum, MA.

Archival content consisted of the original archive files (bundles), the scans and their metadata, archive inventories, indexes, and secondary entries. The team prepared archive files for scanning, records and maintained metadata, and published archival content online. For access on line Mr. Muhammad Haris Budiawan, S.S and Mr. B. Sumardiyono, ST.M.Kom were responsible. This process ensured that the quality of archival information will be maintained by a rigorous process of collation and correction, enhanced by transcription, translation and annotation. Web

content focused on management of the website itself, web support, website mailbox, web content creation and the maintenance, creation and delivery of web content.

Technical maintenance of the DASA network and infrastructure, servers and storage, was a joint responsibility of ANRI's ICT– department, TCF's technicians and developers, and third-party providers.

A software development team was led by Mr. Marco Roling BA with software designers: Mr. Martijn van Workum of BV "nMera Interactive" in Rotterdam, the Netherlands and Mr. Jelle Gerbrandy of "Jelle Gerbrandy ltd" in Torino, Italy. Also, web server maintenance on system software updates, change- and configuration management, incident management, and data backup management were done by the team, supported by ANRI ICT-staff members.

The DASA system, based on open standards, was developed in successive software releases, and extensive System- and End User Documentation was delivered (in a shared Dropbox).

The system consists of several components, that are all together hosted on a webserver with "Ubuntu installation" and several web databases.

These components are: a website (https://www.sejarah-nusantara.anri.go.id), a "Scan store" (https://scanstore-dasa.anri.go.id), a tool for archival descriptions ICA-AtoM (https://icaatom-dasa.anri.go.id) and a repository (https://repository-dasa.anri.go.id).

Release management was done during the project by TCF, who defined, analysed, developed, tested and delivered DASA releases.

Twice a year a new DASA system- release was developed with all relevant documentation. These successive releases included changes and extensions as a result of DASA sub-projects, fixed bugs and improvement of system functionality. DASA software development has been methodically documented, implemented and evaluated in the Netherlands-based TCF test environment and then be deployed in the Indonesian-based production environment.

TCF has employed a rented server for testing purposes of DASA releases. These test services will be concluded and shut down.

Third party suppliers and supporting companies were contracted and relevant contracts were eventually transferred to ANRI.

Transferred equipment to ANRI: Two "Zeutschel A0 High Production- scanners" with dedicated equipment and a storage facility ("Sataboy") were acquired by TCF from Pt. "Tata Bisnis Solusi", based in Jakarta. Special archival storage equipment ("Fast Silent Cubes") was bought by TCF from BV. Comex, Heerlen in the Netherlands.

Maintenance of local DASA infrastructure (Local Area Network) in the ANRI basement was done by ANRI-staff. Contracted were Pt. BizNet (for internet connection), on demand LAN supplies with Pt. Berca, and contract management was done for the production web server with Pt. TelkomSigma.
ANRI ICT- department staff included Mr. Bandot Sumardiyono, Mr. Ferry Lesmana, Mr. Bambang Haryanto and Mr. Mieky Sofyan Yudinata.

The scanning team, with third-party support, was tasked with oversight of the scanning equipment and scanning storage. This applied also for the ANRI network administrator, who was in charge with oversight of the local DASA network, with third party support.

The production webserver is owned (since middle 2016) by ANRI and hosted by PT TelkomSigma in Jakarta. This webserver is to be remotely monitored and updated by ANRI personnel. ANRI has taken over the contract and SLA for the production webserver at TelkomSigma, including increase of the web storage in future. Currently the 2TB web storage is sufficient.

External project assistance was delivered by:
- Corpus Diplomaticum: Fanada Sholiha (UNDIP);
- Diplomatic Letters: Mr. Maarten Manse (Un. Leiden) and Mr. Simon Kemper (UGM);
- Indexes on Marginalia and Appendices: Mrs. Doreen van den Boogaart, Mrs Fenna Ytsma, Mrs. Lydia van Wijk, and Mrs. Hanna te Velde (Un. Leiden);
- Archive management: Mr. Frans Smit (SAA);
- Document and web design: Mr. Anton Feddema;
- Quality approval scanning: Mr. Hans van Dormolen.

External Translators: Mrs. Dr. R. Robson, Mrs. Dr. B. Ruangsilp, Mrs. N. Santoso, Mrs. J. Sutthiman, Dr. P. Carey, Dr. Dhiravat Na Pombejra, Dr. A. van Engelenhoven, Mr. T. Mualim and Dr. S. Robson.

Financial Consultant: LF Consultants Tax and Financial Services, Jakarta.
Auditor: Sulaimin & Rekan, Jakarta.