

## PROJECT FINAL REPORT

### Final publishable summary report

This section must be of suitable quality to enable direct publication by the Commission and should preferably not exceed 40 pages. This report should address a wide audience, including the general public.

#### 1. An executive summary

RUN Emerge was a forty-eight-month-project (2011-2015) that aimed at supporting the capacity building of University of La Reunion (RUN Univ) by federating the research actors from Reunion Island working on emerging infectious diseases (EIDs). Such objective is considered as a prerequisite for a better visibility at the international level of the research conducted in this domain by RUN Univ, to gain leverage in competitiveness and enlarge the ERA to this outermost region of Europe.

During the RUN Emerge lifetime, the following actions were performed:

- The kick-off and the first International Advisory Board meetings were organized in 2011.
- The equipment needed for virology and microbiology research was purchased and installed on CYROI research platform (an Ultracentrifuge, a Cytobox 120, a PCR device, a Tissus Lyser II, a - 80°C deep freezer, a ventilated cabinet for mice, an Autoclave, a microscope and equipment for bacteriology laboratory).
- Nine young scientists were contracted for 24 to 30 months to reinforce the various groups working on Infectious diseases. The fields of research of these post docs were the following: ornithology, virology, cell biology and cell immunology, phylogenetic, ecology, bacteriology, entomology and bioinformatics.
- The scientific days on Infectious diseases in the south western Indian Ocean (SWIO) region were organized that took place in 2011, 2012 and 2013.
- An international workshop entitled “bats, small mammals and infectious agents” was organized in 2013.
- Seven grants were allocated to support young scientists from SWIO to participate to international conferences in 2011, 2012 and 2013.

- Several scientific exchanges (short visits) were organized in 2012, 2013 and 2014: three scientists from SWIO region came to Reunion Island, four researchers from Reunion Island could visit European Labs and fifteen senior scientists visited Reunion Island to give conferences and discuss opportunities of collaborations.
- Three young researchers could visit an International Research laboratory (one in Italy and two in the USA) during one month in 2012 and 2013.
- Two six-month-stays were organized in 2012 and 2013 in Reunion Island for scientists from Madagascar and Tunisia to acquire know-how and new scientific technologies.
- Two intensive practical and theoretical courses of fifteen-day-duration each were organized in 2013. The first one was on “*geo health*” and the second one was on “*Bioinformatics and Comparative Genomes Analyses*”.
- A RUN Emerge website (<http://runemerge.univ-reunion.fr/>) was created in 2011 and updated regularly.

Brochures were produced and distributed at each scientific event.

- A documentary movie on emerging infectious diseases in the tropics was produced.
- The list of scientific publications and communications generated by the research task force was compiled.
- The evaluation of the project by an international independent expert committee was realized in 2014 during two visits of the evaluator panel.

## 2. A summary description of project context and objectives

Reunion Island is an outermost region of Europe located in the South Western Indian Ocean. Being located in a tropical region, close to the eastern Africa, considered as a hot spot for infectious disease emergence, it is exposed to the risk of epidemics. The island has the potential of becoming a centre of excellence for research on infectious diseases as it has access to contrasted island ecosystems with rich endemism of wild fauna which may host specific pathogens. To reach such objective, one must tackle the weaknesses resulting from the remoteness of this island, i.e. essentially scientific isolation and insufficient human resources.

The goal of RUN Emerge was to foster a functional synergy between the various research partner entities on Reunion Island working in the field of infectious diseases to humans, animals and plants. These entities are the CRVOI (Centre de recherche et de Veille sur les maladies émergentes dans l’Océan Indien), four research teams from the University of Reunion (PVBMT, GRI, ECOMAR, LCSNSA) and two research platforms, the CYROI (Cyclotron Océan indien) and the pôle 3P (Pôle de Protection des Plantes).

This partnership is intended to generate multidisciplinary research programs on infectious diseases, either emerging or at risk of emergence in the South West Indian Ocean region (SWIO). Run Emerge supported an eco-systemic approach regarding pathogens, vectors, reservoirs and exposed human populations with the

active participation of medical and veterinary teams, ecologists, life sciences researchers and experts in human and social sciences.

RUN Emerge also aimed at tightening links between RUN Univ and research partners from South Western Indian Ocean ICPCs working on emerging infectious diseases as to allow gaining access to geographic areas where most emerging infectious diseases have occurred during the last decades. Finally it also aimed at opening up the partnership to European leading groups.

### 3. A description of the main S&T results/foregrounds:

RUN-Emerge was not *stricto sensu* a research project. It rather aimed at supporting the capacity building of La Reunion University by federating the different partners working in the field of infectious diseases

RUN Emerge provided support for integrative actions between several institutions from La Reunion University, university hospitals and two research platforms from Reunion Island toward the multidisciplinary investigation of infectious diseases either endemic to the region or emerging.

The equipment that was purchased within the framework of the Run-Emerge project allowed upgrading the CYROI research platform (Cyclotron Océan Indien ) and had a significant impact on the research programs conducted by CRVOI in the P3 lab (emerging viruses) and in the microbiology lab (leptospirosis).

Nine young scientists were recruited to reinforce the S&T research capacity of La Reunion University task force in EIDs. They were rapidly involved in the research programs of the laboratories where they were recruited during their RUN Emerge contract. Their input ended in over 30 scientific publications produced during the four-year-duration of the project.

These recruited scientists backed up the ongoing research programs. Their skills reflected the multidisciplinary approach of the project: humans, wild and domestic fauna, vectors, pathogens, reservoirs, ecosystems, biotopes.

Among these post docs, three could present their results during an international conference, one could spend one week in a European Laboratory and three could visit an International Research laboratory (one in Italy and two in the USA) during one month for know-how and technology acquisition.

The scientific days organized each year provided opportunity for sharing research results on infectious diseases with the local scientific community, as well as scientists from the neighboring countries in the SWIO and from the international community.

The organization of the international workshop “Bats, small mammals and infectious agents” allowed scientists from international laboratories to exchange their views and experiences from the study of infectious agents, and their dynamics in the environment.

The seven grants allocated to researchers from La Reunion University to make an oral presentation allowed them to present the work carried out in their laboratory during an international conference.

The scientific exchanges organized during the RUN-Emerge lifetime with European centers allowed identifying potential area of partnership. Regular seminars were delivered by international scientists in Reunion Island in the field of EIDS (15 lectures in four years). These visits offered the opportunity to discuss ongoing programs, identify possibilities for future collaborations and further scientific exchanges.

Three scientists from South Western Indian Ocean region could come to Reunion Island during one week to discuss future collaborations and two young researchers from ICPCs (Madagascar and Tunisia) could stay six months in CRVOI for know-how and technology acquisition.

Two intensive practical and theoretical courses of fifteen-day-duration each were organized in 2013. The first one was on “*geo health*” and the second one was on “*Bioinformatics and Comparative Genomes Analyses*”.

A RUN Emerge website (<http://runemerge.univ-reunion.fr>) was created in 2011 and updated regularly. Brochures were produced and distributed at each scientific event.

A documentary movie on emerging infectious diseases in the tropics was produced.

The list of scientific publications and communications generated by the research task force during RUN Emerge was compiled.

#### 4. *The potential impact (including the socio-economic impact and the wider societal implications of the project so far) and the main dissemination activities and exploitation of results:*

A workpackage (WP6) was dedicated to the dissemination and promotional activities. It aimed at informing the stakeholders, the public at large and S&T communities at local, regional and international levels about RUN Emerge activities on EIDs and outputs. It mobilized five communication instruments: a website, media, a brochure, a documentary movie and scientific publications.

The website was created in 2011. It was regularly updated according to the RUN Emerge events and it will be managed for five years after the end of the program.

This website was mainly used to inform the scientists about the events that were organized within the framework of RUN Emerge: conference and exchange fellowships, international workshop, the scientific days on emerging infectious diseases in the South Western Indian Ocean region, training and field courses.

A section “about us” is dedicated to the program, its objectives and the management.

Another part “Teams and Partners” presents the institutional partners and the members of the steering committee.

A third section deals with the work packages of RUN-Emerge project. For each of them, the objectives, the activities, the deliverables and the contact details are presented.

The part “News and document” was dedicated to the life of the project: news, open positions, fellowships, deliverables, publications and useful links.

The last part is about the events: conferences, scientific days, training and field courses, scientific stays.

On the homepage of the website a direct access allows to go directly to the following pages: open positions, mobility, conferences and seminars, call for research partnership, training and field courses, and contact.

A press conference was organised for the first scientific days on November 25th 2011.

Pr Dellagi, Pr Gasque, Pr Goodman, Dr Gaüzère and Dr Pruvost presented RUN-Emerge project and the objectives of the scientific days on Emerging Infectious Diseases in the South Western Indian Ocean region. Journalists from Clicanoo, Zinfos 974, JIR and a person in charge of the communication in CIRAD attended this press conference.

Regarding the information broadcast on RUN Emerge project, a presentation was sent to the partners of the RUN Emerge project.

Information on this project is on the following websites:

- **CRVOI:** <http://www.crvoi.org/spip.php?article80>

- **CHU:** <http://www.chr-reunion.fr/spip.php?article180>

- **La Reunion University:** <http://recherche.univ-reunion.fr/cellule-europe/projets-realises/>

<http://recherche.univ-reunion.fr/unites-et-federations/environnementbiodiversite-et-sante/le-projet-run-emerge/>

- **CIRAD:** [http://reunion-mayotte.cirad.fr/actualites/7e\\_pcrd](http://reunion-mayotte.cirad.fr/actualites/7e_pcrd)

- **COI:** <http://www.reseautrecherche-coi.com/action.php?entry=actions&No=40000&actionId=205>

- **Biodiversité et agriculture Océan Indien :** <http://www.agriculture-biodiversite-oi.org/Mediatheque/Liensutiles/Science-recherche-enseignement>

A RUN-Emerge poster was put up during the *Fête de la Science* from November 14th to 19th 2011 and from November 14th to 17th 2012.

A brochure was edited in 2011 with the objectives of the project and the presentation of the different partners. These brochures were distributed during every RUN-Emerge event: scientific days, international workshop, training and field courses.

The didactic documentary movie was produced for the general public. Based on the actual experience of the Run Emerge teams and their ongoing research programs, it stressed the factors that could favor the emergence of infectious diseases: ecological, anthropological factors and their socio economic impacts. This movie focused on epidemic episodes experienced in the region and highlighted the major role played by humans in the emergence phenomenon.

A total of 185 publications were written on EIDs by the Run-Emerge task force during the period of the project: 30 publications were authored by the young scientists specifically recruited within the framework of this project and 155 by the institutions partners of RUN Emerge : CRVOI, GRI, CHU, UMR PVBMT.

**5. The address of the project public website, if applicable as well as relevant contact details.**

The address of the RUN Emerge website is the following: <http://runemerge.univ-reunion.fr/>

The contact details are the following:

- Coordinator: Pr Koussay Dellagi: [koussay.dellagi@ird.fr](mailto:koussay.dellagi@ird.fr)

- Contacts at La Reunion University:

Vice-President for Research: Pr Corinne Duboin: [corinne.duboin@univ-reunion.fr](mailto:corinne.duboin@univ-reunion.fr)

Research University website: <http://recherche.univ-reunion.fr/>

- “Cellule Europe” (European Affairs Office) of Reunion Island: [cellule.europe@innovonslareunion.com](mailto:cellule.europe@innovonslareunion.com)

Cellule Europe website: <http://www.innovonslareunion.com/qui-sommes-nous/la-cellule-europe.html>

and <http://recherche.univ-reunion.fr/cellule-europe/>