

EWARS-csd

(Early Warning and Response System) for climate sensitive diseases

(Sistema Resposta no Alerta Sedu) ba Moras sensitivu ba klima

	English (original version)	Tetum-(unofficial translation)
Ambito de Servisu(scope of work)	EWARS falls into the “Country preparedness and outbreak response” scope of work. It was designed to predict effectively and, in a user, friendly manner epidemics of climate-sensitive diseases such as dengue, chikungunya, Zika, cholera, malaria, among others. EWARS’ conceptualization was based on the biological relationship between the change in a weather condition and the manifestation of a disease outbreak in a specific geographic area/population. EWARS is therefore perceived not only as a statistical but also as an information system designed to support decision-making for national and local level health institutions, enabling them to take action to mitigate the impact of an impending outbreak.	EWARS inklui iha ámbitu "Prontidaun no nasaun nia Resposta ba Surtu". Sistem nee desenhadu maneira efektivu no forma convivial atu predisaun epidemia moras hodi sensível ba klima, hanesan dengue, chikungunya, Zika, kólera, malária, no sel-seluk. Konsetualizasaun EWARS baseia ba ligasaun biolójiku entre mudansa iha kondisaun klima no manifestasaun ba surtu moras iha área/ populasaun espesífiku. EWARS, ne'e hein, entendidu la'ós de'it hanesan sistema estatístiku maibé mós hanesan sistema informasaun hodi apoia desizaun instituisaun saúde nivel nasionál no lokál, hodi hametin sira atu halo asaun ba mitigasaun impaktu husi surtu moras nebe besik mai.
Objetivu(Aim)	This predicting tool aims at: (i) strengthening surveillance systems for climate sensitive diseases; and ii) triggering early vector control by strengthening the coordination between all relevant stakeholders, such as local epidemiologists, meteorologists, entomologists, national and local management agencies that assess risk and develop response strategies, and the public communication channels used to disseminate warning information.	Ferramenta prediksaun ida-ne'e hakarak atu: (i) fortalese sistema vijilánsia ba moras sensitivu klima nian; no (ii) hasai kontrolu moskito sedu-sedu liu ho fortalese koordenasaun entre parte interessadu hotu-hotu, hanesan epidemiólogo lokál, meteorólogo, entomólogo, ajénsia jestaun nasionál no lokál ne'ebé halo avaliasaun ba risku no dezenvolve estratéjia resposta, no komunikaun públiku atu disemina no alerta dadus.
Tanba sa mak persija?(Why is it needed?)	Climate sensitive infectious diseases are currently the fastest spreading illnesses in the world, with over half of the world's population living in areas at risk of dengue, as one of many examples. With climate change, such diseases continue to spread and become a health burden for more communities. It is essential to have tools that can predict when and where outbreaks might occur, to better prepare communities and control programmes.	Doenças infecciosas sensíveis ba klima mak iha dadaun ne'e espalla maka'as liu iha mundu, ho balun liu metade populasaun mundu nain sira moris iha área risku dengue no ezemplu seluk nian. Ho mudansa klimatika, doenças sira ne'ebé hanesan ne'e nafatin espalla no sai todan ba saúde comunidade nian. Di'ak liu atu iha instrumentu ne'ebé bele predikta bainhira no fatin ne'ebé surtu bele okontese, atu prepara di'ak liu programa kontrola ba comunidade sira.

	Usually, a country's national vector control programme is guided by reported cases, which are often under estimated. EWARS works upstream by predicting in advance outbreak scenarios based on alarm predictors such as meteorological, epidemiological, and entomological data, which can guide an early structured response in time and space, prior to the disease manifestation.	Bai-bain, programa kontrolu vektor nasiunál iha ne'e normalmente orienta husi kazu reportadu, ne'ebé dala barak halo deit estimisaun nebe iha. EWARS atu haree iha montante, liu-liu antes, atu prevee kazu sabotajen bazeiadu ba sinais alarme sira hanesan dados meteorológiku, epidemiológiku, no entomológiku, ne'ebé bele lori liu orientasaun hodi responde ho estrutura sira iha tempu no espasu, molok moras sira manifestasaun.
Funsaun sira (Functions)	EWARS builds a prediction algorithm that is data and area specific, using historical disease records, and analyses retrospectively their association with alarm indicators (which are the functions of dashboard 1 used at the country or central level). It further employs prospective (weekly) alarm information, e.g., mean temperature, humidity, rainfall, ovitrap index, among others, to predict a forthcoming outbreak (which is a function of dashboard 2 used at district level). EWARS uses a robust modelling system with a user-friendly interface to enable data understanding by frontline health care workers and data use for appropriate local response. It has the potential to improve collaboration at regional level (i.e., regional surveillance, data sourcing, joint response, etc.) for surveillance and response, applying a multisectoral approach.	EWARS konstrui algoritmu prediksaun ne'ebé espesífiku dados no área, uzadu dados moras históriu, no hamosu tan sira-nia asosiasaun ho indikador alarm (ne'ebé funsaun hosi kuadru instrumentu 1 iha nasaun ka sentral nível). Tan liután, EWARS imprega dados alarm prospektivu (semanal), hanesan temperatura média, umidade, udan been, índise ovitrap, entre outros, atu halo predisaun kona-ba surtu oin-mai (ne'ebé funsaun hosi kuadru instrumentu 2 iha nível distritál). EWARS uza sistema modelu forte ho interface fácil utiliza atu facilita haree dados husi trabalhador saúde iha liña frente no uzu dados ba resposta lokal apropiada. Nia fó potenciál atu hadi'a kolaborasaun iha nivel rejional (ezemplu, vijilánsia rejional, sira nebe forneselementu dados, resposta conjuta, no seluk tan) ba vijilánsia no resposta, ho aplika abordajen multisectoral sira.
Dezeinho hosi (Designed by)	EWARS employed a co-design and co-production approach led by the UNICEF/UNDP/World Bank/ WHO Special Programme for Research and Training in Tropical Diseases (TDR) and the World Health Organization's Climate Change and Health Unit, together with endemic countries, the University of Freiburg (Germany) and the University of Gothenburg (Sweden), and engaging key stakeholders such as the World Meteorological Organization, IT experts, endemic partner countries (ministries of health, district health managers, local meteorological and entomological entities) in five WHO regions. Its development benefited from users' feedback, including recommendations for improvements.	EWARS utiliza abordajen koesaun no koo-produsaun nian, hamutuk ho UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR) no World Health Organization's Climate Change and Health Unit. Ita-nia desenvolvimento envolve nasaun endemis, Universidade Freiburg (Alemaña) no Universidade Gothenburg (Suéka), no envolve mos prinsipál interesado sira nune'e hanesan World Meteorological Organization, IT experts, no entidade endémiku parseiru sira (Ministériu Saúde, Jestor saúde distritál, no meteorológiku no entomológiku lokal) iha rejiaun lima WHO nian. Progreso desenvolvimentu benefisia husi feedback utilizador nian, inklui rekomendasaun ba melhoramentu liutan.
Lansamenetu (Launched)	EWARS has been developed, used, and validated since 2012 in more than 17 countries in the WHO Regions of Africa, the Americas, the Eastern Mediterranean, South-East Asia and the Western Pacific,	EWARS desenvole ona, uza no halo validasaun hosi tinan 2012 iha nasaun 17 nebé iha rejiaun OMS hanesan rejiaun Afrika, América, Mediterrâneo Oriente, Sudeste Ázia no Pasífiku Osidental, no sei taka

	and is close to being fully implemented in the national surveillance platforms of Colombia, the Dominican Republic, Mexico and Thailand.	total implementasaun tomak iha plataforma vijilánsia nasionál iha Kolumbia, Repúblika Dominikana, Méxiku no Tailândia.
Asesu(Access)	EWARS is a free open-access tool, based on free R software, created with the aim of granting countries full ownership of the tool and its processes.	EWARS maka instrument gratuitu hp asesu livre, mak baseia iha Software R gratuitu, kria ho objetivu atu atribui propriedade nian ida ne'ebe' iha nia prosesu.
Alvu utiliza (Target users)	Country ministries of health and district health managers.	Nasaun Ministerio Saude no manajer saude distrito
Nasaun sira (Countries)	All tropical and sub-tropical countries prone to climate sensitive diseases. EWARS is currently being used in five of the six WHO regions (see above).	Nasaun tropikál no sub-tropikál hotu-hotu nebe risku ba moras sensitivu ba klima. EWARS agora uza dadaun iha rejiaun lima hosi rejiaun ne'en OMS nian(hare iha leten).
Lingua (Languages)	A generic English version is offered, but typically once installed in the country's local server, local language can be used. For instance, the Dominican Republic and Mexico have the tool in Spanish and Thailand in Thai.	Versaun jeneriku Ingles oferese, maibé tipikamente uluk hetan iha servidór lokál nasaun, lian lokál bele uza. Por ezemplu, Repúblika Dominikana no Méxsiku iha instrumentu ne'e iha Espanhól no Tailândia iha Tailandés.
Karikula ida kona-ba karakteristika Tékniku (Technical features)	Essentially, EWARS is designed in such a way that it can integrate within countries' routine activities, i.e., not to add more work or effort on already overstretched national control programmes. It facilitates a user-friendly interface (only minimal calibration or application needed) and can be hosted by any local server so that ministry of health and districts/ municipalities are digitally connected for information exchange and monitoring.	Iha essensia, EWARS dezenvolve iha nune'e atu integra ho atividade rutina iha nasaun, iha ne'e mak laiha aumenta tan servisu ou esforsu iha programa kontrolu nasionál ne'ebé la'o tiha ona. Aplikasaun ne'e fasilita dalan fasil ba nia interfás amigável (liu de'it esforsu mínimu kalibrasau ka rekerimentu aplikasaun) no bele iha server lokál ne'ebé importante tan liu hodi ministériu saúde no distrito/munisípiu liga digitalmente hodi troka informasaun no monitorizasaun.
Interoperabilidade (Interoperability)	It is designed in a flexible way so that countries can monitor alarm signals at the central and local level. Commonly, the ministry of health or the national institute of health is the central level overseeing the process, but the district level is usually the first to take action, in agreement with the central level. Larger countries such as India could see states acting as central levels to align with the large number of districts and localities. Interoperability with the surveillance system DHIS2 has also been achieved.	Nia desenha ho flexibilidade nune'e nasaun bele monitoriza senyales alarme iha sentrá ho nível lokál. Hanesan komum, Ministériu Saúde ou Instituto Nasionál Saúde mak hanesan nível sentrá hodi monitoriza prosesu ne'e, maibé nível distrito uluk tanba iha akordu ho nível sentrá. Nasaun boot liu hanesan India bele haree estadu sira atu atua hanesan nível sentrá hodi alinha ho distrito ho lokálidez ida idak nian ne'ebé boot. Compatibilidade ho sistema vijilánsia DHIS2 mós mak hetan atinjimentu ona.
Kobertura Servisu (Outreach)	The WHO/Climate Change and Health Unit (CCH) and TDR are overseeing the administrative process, while the partner universities (Freiburg and Gothenburg) maintain the technical and operational aspects, as well as providing expertise on surveillance, training, and	Unidade WHO/Mudansa Klimátika no Saúde (CCH) no TDR sei superviza prosesu administrasaun nian, samuray no universidade parseiru Freiburg no Gothenburg sei manten tekniku no operacional, no oferese perísia kona-ba bazeia, formasaun no resposta. TDR apoia

	response. TDR supports implementation research for evaluating the feasibility, acceptability and impact of using EWARS and WHO/CCH is helping with access to meteorological data.	investigasaun implementasaun ba evalua viabilidade, akseitabilidade no impaktu iha uza EWARS no WHO/CCH sei hetan ajuda ba asesu ba dados meteorolojia.
Security and privacy	The tool is 100% owned by users and uploaded on local servers, so countries take control of their data, ensuring security and privacy. The tool is further designed to allow secured access and communication within and between districts, i.e., ministries of health have the administrative power to assign users and passwords.	Ho instrumentu ne'e mak propriedade 100% husi uza-na'in no upload iha server lokál, nune'e nasaun sira bele kontrola sira-nia dados, asegura seguransa no privacidade. Instrumentu ne'e dezain liután atu permite asesu seguru no iha komunikasaun entre distritu sira ou seja, ministériu saúde iha poder administrativu atu haruka uza-na'in no password.
Karakteristika Prinsipal (Core features)	✔ Data management and reporting • EWARS works as a subset of the national surveillance programme. • While it requires simple time and area specific information (in Excel format), it can also act as a data hub/storage of prospective information. • It organizes the data feeding in an automated way, automatically connecting, and feeding data between the surveillance programme and meteorological or entomological entities, which saves time and effort and improves consistency of data. ✔ Availability and support • The tool has a series of published reports (available on WHO's website), video training (on YouTube and the EWARS GitHub) and pre-recorded PowerPoint presentations to guide users in the installation, calibration, and interpretation of the tool's parameters. • The EWARS team provides monthly follow-up and technical assistance. ✔ Customization and flexibility • The tool relies on the country's local (often already existing) server.	✔ Jestaun dados no relatorio • Servisu EWARS nudar subset programa vijilansia nasional • Bainhira presiza informasaun simpels ba tempu no área espesífiku (iha formatu Excel), aplikasaun ida nee mos nia funsaun hanesan dados sentral/bele rai informasaun provavel. • Organiza dados alimentasaun ho maneira automatizadu, liga no fornece dados entre programa vijilánsia no entidade meteorolójiku/a ou entomolójiku/a, ne'ebé poupa tempu no esforsu no mihis konsisténsia dados. ✔ Disponibilidade no suporta • Instrumentus/feramenta nee serie relatorio publika (disponivel iha website OMS), video ba treinamentu nian (You Tube no EWARS GitHub) no apresentaun PowerPoint gravada hosi antes ba orienta nian uza instalasaun, kalibrasaun no interpretaun ba parametru nian. • Ekuipa EWARS fornese akompañamentu mensal no asisténsi técnica ✔ Personalizasaun ho flexibilidade. • Instrumentu nee depende ba server local (nebe existi ona) • Pesoal IT iha nasaun mak halo parte atu hatene atributu husi instrument no ba lori parte iha prosesu instalasaun

- Country IT personnel are engaged to understand the tool's features and to take part in the installation process.
- The tool is designed in such a way that additional or independent maintenance is not required as it aligns with the routine IT tasks of the country's server.

✓ **Security and compliance**

- Data are located in and owned by the country. Therefore, data security follows the country's own protocol. The tool provides a means for increasing the security aspects for users, but it is entirely up to users how they control that.

✓ **User management**

- There is no limitation to the number of users, depending on the server's capacity. However, by virtue of the automated feature of data feeding, the central level (ministry of health) will do the semi-automatic calibration only once per year, otherwise, no specific management activities are needed

- Instrumentu ne'e desenha ho nune'e atu la persiza manutensaun adisionál ka independente tanba alinha ho rutina tarefas IT server nasional nian

✓ **Seguransa no Compliance**

- Dados lokaliza iha nasaun nebe nain. Tanba ne'e, seguransa dados continua tuir protocol nasaun nian. Instrumentu fornecedor dalan ba aumenta aspetu seguransa ba utizador sira, maibe kontrola tomak ne'e ba sira e oinsa atu kontrola sira.

✓ **Jestaun utilizadór.**

- La iha limitasaun ba numero ema nebe uza, depende ba kapasidade server Nia. Tanba automatiku hosi aspetu dados nian, sentrá (Ministériu Saúde) sei halo kalkulasaun semi-automátiku dala ida kadatinan, se lae, la presiza atividade jest aun espesífiku seluk.