République
du Mozambique

Liberté - Égalité - Fraternité
RÉPUBLIQUE FRANÇAISE

Ministère des Affaires
Etrangères
Coopération et francophonie
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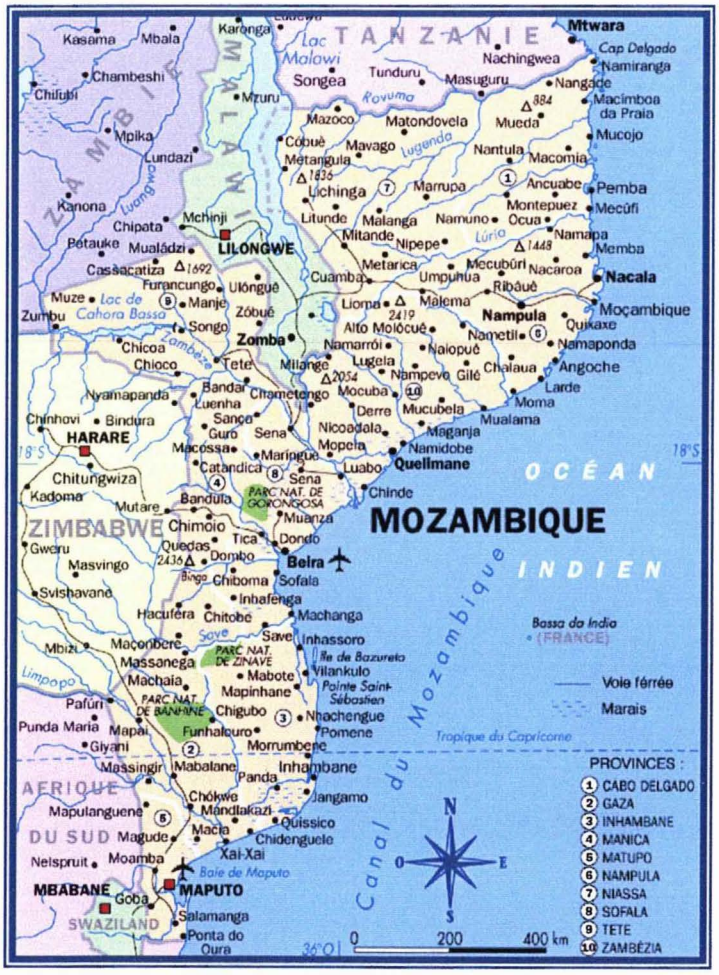
75700 PARIS

MONOGRAPHIE

MOZAMBIQUE



Mission du 4 au 7 juillet 2001

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Septembre 2001

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ANNEXES

I – PRÉSENTATION GÉNÉRALE

- La République du Mozambique compte plus de **trois mille kilomètres de côtes** et se situe entre **l'Afrique du Sud** et la **Tanzanie.** Elle est aussi **frontalière du Malawi, de la Zambie, du Zimbabwe et du Swaziland.**

- **Le climat est de type tropical**, avec une saison des pluies de novembre à mars.

- La population, de majorité rurale, est de **18,4 millions d'habitants (1997)** et se concentre sur les régions côtières.

- Le pays, ancienne colonie portugaise, accéda à **l'indépendance le 25 juin 1975**. Après **trente ans de guerre, l'économie est à reconstruire**.
  (cf. fiche détaillée sur le Mozambique en **Annexe 1**).

II – ÉLEVAGE ET CONTRAINTES SANITAIRES

2.1. Estimation du cheptel

➢ **Bovins**	:	520 000
➢ **Ovins**	:	90 000
➢ **Caprins**	:	760 000
➢ **Porcins**	:	190 000
➢ **Volailles**	:	2 200 000

Avant la guerre, l'effectif bovin était de **1 400 000**. Il a chuté jusqu'à **200 000** têtes, soit une perte de **85 %** du cheptel et est remonté actuellement autour de **500 000** bovins.

2.2. Contraintes sanitaires

- Le Mozambique a déclaré à l'O.I.E. en 2000 **les maladies de la liste A suivantes** :

  - **Dermatose nodulaire contagieuse** : présente dans huit provinces sur dix,
  - **Peste porcine africaine** : présente depuis 1994 avec des foyers sporadiques en dehors de la zone endémique (province de Tete),
  - **Maladie de Newcastle** : présente dans toutes les zones rurales malgré l'intensification de la vaccination (cf. documents OIE/SADC et carte en **Annexe 2**).

- **Le pays est indemne des maladies suivantes de la liste A** :

  - **Fièvre aphteuse** :

    ✓ **Derniers foyers en 1985** (voir carte en **Annexe 2**),
    ✓ Pour l'OIE, le Mozambique est considéré comme **endémique** pour la fièvre aphteuse,

- ✓ **Les services vétérinaires vaccinent le long de la frontière avec le Parc Kruger en Afrique du Sud et dans les « couloirs d'exportation » de Beira,** pour prévenir l'introduction du virus à partir de l'Afrique du Sud et du Swaziland.

- **Fièvre de la Vallée du Rift** : pas de foyer en 2000 malgré la détection **d'animaux séropositifs** (sérosurveillance).

- **Les principales maladies de la liste B présentes, sont :**

  - ✓ **La rage** : endémique en zones rurales et urbaines
  - ✓ **La brucellose** : en progression sensible (zoonose)
  - ✓ **La tuberculose** : selon les responsables rencontrés, **la tuberculose serait arrivée de Madagascar à la fin des années 80 (?)**
  - ✓ **La dermatophilose**
  - ✓ **Trypanosomoses**
  - ✓ **Cowdriose, babésioses anaplasmoses.**

III – PRÉSENTATION DES SERVICES VÉTÉRINAIRES

3.1. Organigramme

- **Ministère de tutelle : Ministère de l'Agriculture et du Développement Rural**
  Ce Ministère comprend plusieurs directions dont **la Direction Nationale de l'Elevage** (Direcçao Nacional de Pecuária) – DINAP

  - **La DINAP** comprend, pour la santé animale :

  Un département santé animale avec trois unités :
  - ✓ Santé publique vétérinaire
  - ✓ Tsé-Tsé et trypanosomoses
  - ✓ **Épidémiologie vétérinaire** (qui, semble-t-il, est rattachée maintenant directement à la DINAP).

  - NB : L'Institut National de Recherches Vétérinaires (INIVE) ne dépend pas de la DINAP mais directement du Ministre. Cette situation, d'après l'ensemble des personnes rencontrées, crée en permanence, un **climat conflictuel entre la DINAP et l'INIVE** ; ils n'ont pas, par exemple, les même priorités en terme de recherche ou d'épidémiosurveillance ! (Cf. **organigrammes en Annexe 3**).

3.2. Personnel des services vétérinaires

- **Vétérinaires** :
  - Fonctionnaires (Ministère et en poste) : 79
  - Laboratoires, universités, formation : 60
  - Praticiens privés : 10
  - **Total** : **149**

- **Assistants santé animale :** **154**
- **Auxiliaires santé animale :** **192**
- **Total général :** **495**

IV – PRÉSENTATION DE L'UNITÉ D'ÉPIDÉMIOLOGIE VÉTÉRINAIRE (DINAP)

4.1. contexte général

- Cette unité au sein de la DINAP a été **créée en mai 2000** sur **financement de l'IFAD** (International Fund for Agricultural Development).
- Ce projet, d'une durée de **cinq ans**, a été confié à un opérateur : **PANLIVESTOCK SERVICES (Reading – UK).**
- **Un assistant technique pour deux ans (renouvelables ?)** Dr Carlos Lopes PEREIRA, vétérinaire épidémiologiste (**jusqu'en mai 2002 minimum**).

4.2. Présentation des activités de l'unité

- Les responsables de cette unité transmettent au consultant une liste très complète et détaillée de **réponses à un questionnaire** qui leur a été remis, au préalable, par le SCAC de Maputo (cf. **Annexe 4**). La lecture de ce document appelle les commentaires suivants :
  - Cette unité est limitée à **1,5 personnes** actuellement, ce qui est faible par rapport aux activités entreprises.
  - Cette unité a en charge **la surveillance active et continue** (passive).
  - **La procédure d'alerte** en cas de suspicion de foyer est formalisée avec émission d' « **outbreak reports** ».
  - **La saisie et le traitement des données sont informatisés** avec géo-référence des foyers (**cartographie, GPS**)
  - **Les maladies prioritaires ont été identifiées** à la suite d'une enquête auprès des provinces en 2000. La liste a été envoyée à la SADC ; il s'agit en premier lieu de :
    - ✓ **Maladies présentes** :
      - ➢ **Peste porcine africaine,**
      - ➢ **Dermatose nodulaire contagieuse,**
      - ➢ **Maladie de Newcastle,**
      - ➢ **Rage,**
      - ➢ **Tuberculose,**
      - ➢ **Fièvre de la vallée du Rift** (sérologies positives uniquement).
      - ➢ **Maladie de Gumboro**
    - ✓ Maladies représentant un risque permanent d'introduction au Mozambique :
      - ➢ **Fièvre aphteuse,**
      - ➢ **PPCB**

      Analyses de risques à mettre en place.

- **Un planning de travail par province** a été élaboré et mis en place
- **Les procédures de déclaration en cas de foyer sont en place** au niveau national et international (SADC-OIE/FAO)
- **Des rapports mensuels et annuels** sont envoyés à la SADC et à l'OIE
- **Un bulletin semestriel** (?) d'épidémiologie vétérinaire est édité. Les deux premiers numéros sont parus :
  - N° 1 juin 2000
  - N° 2 Février 2001
- Un TCP FAO a permis de concevoir un **système TAD-INFO** adapté au Mozambique. Ce projet est presque finalisé.
- On signalera, enfin, que le Ministère de l'Agriculture étudie un projet intitulé **PROAGRI** dont l'objectif est de fédérer les différents bailleurs de fond, dans un souci de coordination et afin d'éviter les « redondances ». Le projet, soutenu par l'IFAD, connaît un retard pour la mise à disposition des financements.
- **Des problèmes identifiés** :
  - ✓ **Absence de téléphone et de mail** dans les services provinciaux,
  - ✓ **Le système d'information SADC fonctionne imparfaitement actuellement :** certains pays transmettent de façon irrégulière leurs informations sanitaires et le retour « globalisé » de l'information se fait mal.
- **En Annexe 4** on trouvera :
  - Réponses à un questionnaire
  - Outbreak reports
  - Planning d'activités des provinces
  - Monthly reports
  - Bulletins épidémiologiques mensuels
  - Bulletins épidémiologiques n° 1 et 2
  - SADC projects :
    - ✓ information system
    - ✓ early warning systems
  - PROAGRI
- D'une façon générale, le consultant émet un **avis très favorable sur cette unité d'épidémiologie vétérinaire** qui, et cela est un risque, est, une fois de plus, dépendante d'un projet !

4.3. Commentaires

- En conclusion des réunions à la DINAP, **tous les interlocuteurs se sont montrés très intéressés par le projet proposé.** A leur avis, il faudrait un **projet de trois à cinq** ans avec un **coordonnateur au niveau international.**

- **La DINAP est demandeur de** :
  - Échange d'informations, système d'alerte (SADC-COI)
  - Formations en épidémiologie
  - Analyse de risque (fièvre aphteuse, PPCB)
  - Mise en place des stratégies globales de contrôle des dominantes pathologiques (SADC-COI).

- La DINAP est prête à mettre en place une **équipe commune DINAP-INIVE** dans le cadre du projet COI et à **favoriser l'interface avec la SADC**.

V – PRÉSENTATION DE L'INSTITUTO NACIONAL DE INVESTIGAÇÃO VETERINÁRIA » (INIVE) (NATIONAL VETERINARY RESEARCH INSTITUTE – NVRI)

5.1. Présentation générale

- L'Institut National de Recherches Vétérinaires de Maputo est placé directement **sous la tutelle du Ministre de l'Agriculture et du Développement Rural** (cf. Organigramme de ce Ministère en **Annexe 3**). Il est **totalement indépendant de la DINAP**, d'où, rappelons-le, une **absence totale de coordination entre ces deux structures** en terme de définition des priorités et des stratégies de lutte.

- **Les objectifs généraux de cet Institut sont** :

  - **Le diagnostic et la recherche** sur les maladies animales (y compris les zoonoses),
  - **Le contrôle de qualité** (hygiène alimentaire, médicaments),
  - **La production de vaccins** bactériens et viraux à usage vétérinaire,
  - **La formation** de techniciens.

- Les objectifs, les activités et les ressources humaines de cet institut sont détaillés en **Annexe 5**.

  On notera que cet institut gère **neuf laboratoires provinciaux** dont les activités, **souvent très réduites**, se limitent à l'observation post-mortem, la parasitologie, la sérologie de la Brucellose et la collecte d'échantillons de sérums destinés au laboratoire central de Maputo.

  Trois expatriés en poste : 1 dans un laboratoire régional, 2 affectés au projet vaccin Newcastle.

- **Les budgets se répartissent comme suit** :

  - **Le fond de roulement** assure les salaires et les dépenses d'énergie,
  - **Les budgets de recherche sont assurés** à hauteur de :
    - ✓ **30 % par le Gouvernement,**
    - ✓ **70 % par les bailleurs de fond** :
      - ➢ Coopération australienne
      - ➢ Coopération suédoise
      - ➢ Banque Mondiale (projet PROAGRI)
      - ➢ IFAD (International Fund for Agricultural Development).

5.2. Activités de diagnostic et recherches de l'INIVE :

- **Les compétences de l'INIVE dans le domaine du diagnostic** sont :

  - **Bactériologie** :
    - ✓ **Brucellose** :
      - ➢ Sérologie (agglutination, CFT, Ring-Test)
      - ➢ Isolement
    - ✓ **Tuberculose** : isolement
    - ✓ **Charbons bactéridien et symptomatique** :
      - ➢ isolement
      - ➢ identification
    - ✓ **Salmonelloses aviaires**
    - ✓ **Dermatophilose** : isolement
    - ✓ **PPCB, PPCC** : **aucune compétence.**

  - **Virologie**
    - ✓ **Peste porcine africaine** :
      - ➢ Sérologie (IF, Elisa, électrophorèse)
      - ➢ Isolement.
    - ✓ **Fièvre aphteuse** : **envoi de prélèvements en Afrique du Sud (Onderstepoort)**
    - ✓ **Rage** : diagnostic courant
    - ✓ **Maladies aviaires** :
      - ➢ Sérologie
      - ➢ Isolement
        - ❑ Newcastle
        - ❑ Gumboro
        - ❑ Bronchite infectieuse
        - ❑ Marek
        - ❑ Laryngotrachéite
        - ❑ Réoviroses
        - ❑ Poxviroses
    - ✓ **Dermatose nodulaire** : isolement du virus et envoi à **Onderstepoort** pour typage

  - **Parasitologie**
    - ✓ **Helminthes**
    - ✓ **Hémoparasitoses** : anaplasmoses, babésioses, frottis uniquement, pas de sérologie (Elisa)
    - ✓ **Tiques, gales**

  - **Hygiène alimentaire** : analyses physico-chimiques et bactériologiques courantes.

- **Dans le domaine de la recherche, l'INIVE développe plusieurs projets sur** :

  - La fièvre aphteuse,
  - Les diarrhées bactériennes des veaux,
  - La pathologie des vaches laitières,
  - La Brucellose,
  - La peste porcine africaine

- Les carences nutritionnelles des petits ruminants (oligo-éléments)

- **La maladie de Newcastle** : (projet australien) : développement d'un **vaccin thermostable** avec des résultats expérimentaux sur le terrain, semble-t-il, encourageants. On notera, cependant, que la souche vaccinale proposée est une **souche exotique** (I_2, Australie) et qu'il s'agit d'un vaccin vivant, avirulent (risque de réversion de la virulence ?). D'autre part, pour assurer une immunité solide, **deux ou trois vaccinations par an sont nécessaires**, ce qui constitue un facteur limitant important pour l'utilisation de ce vaccin sur le terrain !

- **L'INIVE produit les vaccins suivants** :
  - ✓ **Charbon bactéridien** : 500 000 doses/an
  - ✓ **Charbon symptomatique** : 200 000 doses/an
  - ✓ **Tuberculine** : 100 000 doses/an
  - ✓ **Newcastle** (La SOTA, I_2) : 5 000 000 doses/an
  - ✓ **Rage** : 80 000 doses/an

  Les quantités produites sont très faibles et leur qualité inconnue (en regard des normes internationales OIE). **La gamme proposée est très limitée. L'environnement** (locaux, matériel de production et de contrôle) **est « rustique et hors d'âge » !**

  Les locaux de production sont situés au même niveau que ceux des laboratoires de diagnostic : un couloir central les sépare ! !

  La maintenance générale n'est pas assurée de façon satisfaisante (selon les responsables).

  Il ne peut donc être tenu compte de l'apport éventuel de cette production dans le cadre du projet COI.

5.3. Propositions de l'INIVE

Les responsables de cet institut ont très clairement manifesté leur **intérêt pour participer au projet proposé** et souhaitent un appui dans différents domaines (cf. documents transmis au consultant en **Annexe 5**).

Il a été convenu, en accord avec la Direction de l'INIVE, que le projet pourrait, **en priorité, apporter un appui à la formation des personnels du laboratoire de Maputo.**

Les thèmes prioritaires retenus sont, en première urgence :

- **Production et entretien des cultures cellulaires pour le diagnostic des virus** : deux à trois mois pour un technicien **à Onderstepoort.**
- **PPCB** : isolement et identification complète de Mycoplasma myc-myc s/c. Un a deux mois pour deux techniciens **au CIRAD-EMVT à Montpellier.**

La formation PPCB est considérée comme une toute première priorité afin d'assurer l'épidémiovigilance vis-à-vis de cette maladie présente aux frontières : Tanzanie, Zambie (cf. **Annexe 5**).

- L'INIVE indique, d'autre part, que le laboratoire d'**Onderstepoort** assure la formation de techniciens pour le diagnostic de la **Peste Porcine africaine, la rage et la fièvre aphteuse**.

VI – PRÉSENTATION DU PROJET DE DÉVELOPPEMENT DE L'ÉLEVAGE DANS LA PROVINCE DE MAPUTO : PDPPM (PROJET AFD-SOFRECO)

Au cours d'une réunion au SCAC de Maputo (4/07/01) avec des responsables de **l'AFD** et de **SOFRECO** en poste au Mozambique, ce projet a été présenté au consultant.

- Ce projet sur **cinq ans** est financé par l'AFD à hauteur de 25 millions de FF et il est à **mi-parcours.**

- Le maître d'œuvre est la **DINAP**.

- L'opérateur est **SOFRECO** avec des missions d'appui du **CIRAD-EMVT.**

- Les objectifs sont :

  - **Reconstitution du cheptel** :
    4 à 5 000 bovins de race locale pour la traction animale

  - **Santé animale** :
    Privatisation des services vétérinaires
    Formation d'auxiliaires vétérinaires
    Mise en place d'un vétérinaire privé
    Création d'un ordre des vétérinaires

  - **Organisation paysanne** :
    Associations d'éleveurs.

  L'objectif final est la **commercialisation de bovins pour la traction animale.**

- **Contraintes sanitaires observées sur le terrain** :
  - Hémoparasitoses : Cowdriose, Babésioses, anaplasmoses
  - Brucellose
  - Tuberculose
  - Dermatophilose
  - Charbon bactéridien
  - Charbon symptomatique.

- **Risques sanitaires et flux commerciaux** :
  Les responsables de SOFRECO et de l'AFD présents à la réunion, indiquent que **des flux commerciaux « à risque »** sont identifiés : il s'agit d'importations de bovins et caprins principalement du **Zimbabwe** et du **Malawi**, qui transitent par chemin de fer jusqu'aux ports de **Beira** et **Maputo** et seraient ainsi « **exportés clandestinement** » vers **Madagascar, les Seychelles et l'Ile Maurice.**

Ces exportations par le « **corridor de Beira** » sont bien mentionnées dans le rapport sur la situation zoosanitaire 2000 présenté par le Mozambique à la session générale de l'OIE en Mai 2001) (cf. **Annexe 2**).

Même si le Zimbabwe est indemne de fièvre aphteuse et de PPCB, il ne faut pas oublier que le **Malawi a déclaré la fièvre aphteuse en mai 2000 et mars 2001** ! !

Des vétérinaires français (précédemment en poste au Mozambique) et malgaches (Direction des Services Vétérinaires) consultés à ce sujet estiment que **de telles importations clandestines vers la COI ne sont pas impossibles ! !**

VII – ENTRETIEN AVEC LE VICE-MINISTRE DE L'AGRICULTURE ET DU DÉVELOPPEMENT RURAL

- S.E. Monsieur J.Z. CARRILHO a indiqué au cours d'une réunion, que le Ministère de l'Agriculture et du Développement Rural du Mozambique apporterait **tout son soutien au projet présenté.** Il a insisté sur le fait qu'un tel réseau devait **répondre à la demande publique** et qu'il fallait, avant tout, **créer cette demande**.

- Le Vice-Ministre souhaite, d'autre part, qu'un **volet sensibilisation-vulgarisation** soit prévu dans le cadre du futur réseau au bénéfice des agents de terrain et des éleveurs.

- Il indique, enfin, que la **sensibilisation continue du public** (surtout en zone d'élevage) avec l'appui des médias (presse, radio, télévision, éducation nationale) est à la charge de l'Etat ainsi que le **recyclage des agents de terrain**.

VIII – SYNTHESE DE LA SITUATION ZOOSANITAIRE AU MOZAMBIQUE

8.1. Synthèse

- Le Mozambique **est frontalier de 6 pays d'Afrique australe. Madagascar n'est qu'à 400 Km** environ au large des côtes mozambicaines. Ces données doivent être prises en compte pour une évaluation des risques zoosanitaires majeurs.

- **Le cheptel reste faible** malgré une croissance significative ces dernières années.

- **Les contraintes sanitaires identifiées sont importantes**, diversifiées et souvent difficilement gérées. Le pays se déclare toujours **indemne de fièvre aphteuse** auprès de l'OIE depuis 1985, bien que cet organisme considère actuellement le Mozambique comme « **pays infecté** » vis-à-vis de cette maladie.

- **Les services vétérinaires (DINAP) sont structurés** et bénéficient de l'appui **d'une unité d'épidémiologie vétérinaire dynamique et compétente**, dans un contexte général encore difficile et fragile (créée en Mai 2000, pour une durée de 5 ans sur financements IFAD). **La pérennité de cette unité devra être assurée à partir de 2005.**

- **L'Institut national de recherches vétérinaire de Maputo (INIVE) est totalement indépendant de la DINAP, ce qui pose un grave problème de coordination DINAP/INIVE.** Cet Institut présente certainement des compétences qu'il faudrait évaluer précisément, dans le domaine de l'analyse vétérinaire (bactériologie, virologie, parasitologie) sauf (et c'est bien dommage !) **pour la PPCB et la fièvre aphteuse.**

- L'INIVE est producteur d'un certain nombre **de vaccins bactériens et viraux, de qualité indéterminée et en très faible quantité.**

8.2. Commentaires pour une approche des risques fièvre aphteuse et PPCB

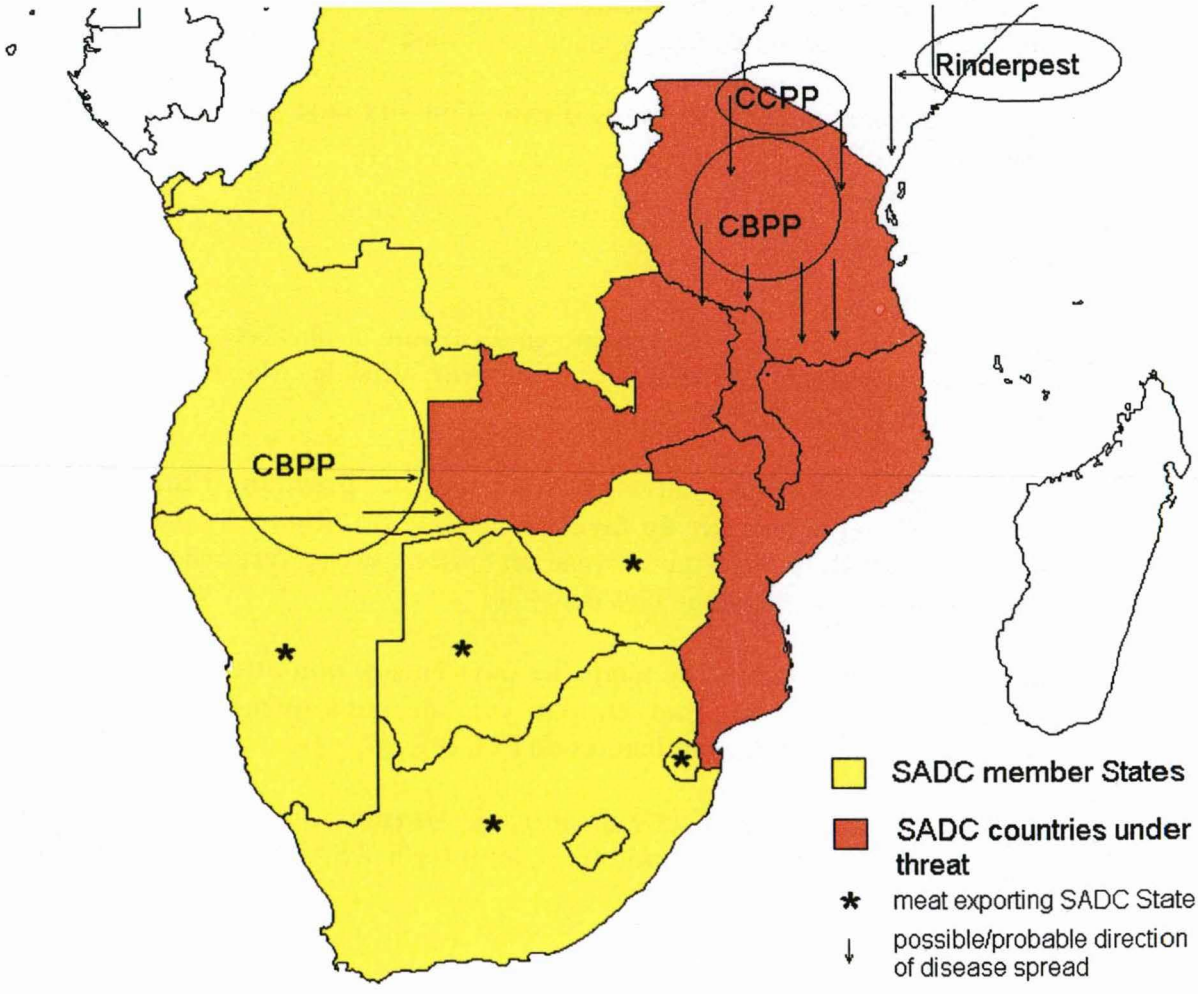
Il a semblé utile au consultant de présenter sous forme de tableau très simplifié **un état actuel de la situation zoosanitaire vis-à-vis de la fièvre aphteuse et de la PPCB, « 2 maladies à haut risque », en se limitant aux 6 pays frontaliers du Mozambique, au Mozambique lui-même et aux Etats-membres de la COI** (Madagascar principalement).

D'autre part, un document cartographique transmis au consultant par la DINAP, présente clairement **la situation zoosanitaire pour la PPCB dans la zone SADC en 2001.**

Pays	Fièvre aphteuse	PPCB
Afrique du Sud	+	- (1924)
Malawi	+	-
Swaziland	+	-
Tanzanie	+	+
Zambie	+	+
Zimbabwe	- (07/1999)	- (1904)
Mozambique	- (1985)	-
COI (Madagascar)	-	-

(Mois/année) : date à laquelle la maladie a été signalée pour la dernière fois dans les années précédentes
Tableau établi à partir **des données officielles OIE** (session générale de l'OIE, Paris, Mai 2001)

Le risque PPCB dans la zone SADC en 2001



Document DINAP/Unité d'épidémiologie vétérinaire (juin 2001)

La lecture de ce tableau et de cette carte appelle un certain nombre de commentaires :

- **Fièvre aphteuse**

Seuls **le Zimbabwe** (dernier foyer déclaré en Juillet 1999) et **le Mozambique** (dernier foyer déclaré en 1985) se déclarent indemnes de fièvre aphteuse en 2001 auprès de l'OIE, avec la restriction émise pour le Mozambique (« pays infecté »).

Etant donné la faiblesse actuelle des moyens logistiques, techniques et humains des services vétérinaires du Mozambique, combien de temps ce pays pourra-t'il maintenir officiellement son statut de « pays indemne » vis-à-vis de la fièvre aphteuse ?

Dans ce contexte, **quel est le risque d'extension aux pays de la COI et principalement à Madagascar** ?

- **PPCB**

La maladie est officiellement présente en **Tanzanie** et plus récemment en **Zambie**, avec un risque permanent **d'extension Nord/Sud** vers le Malawi, le Mozambique, le Zimbabwe et l'Afrique du Sud.

On voit bien également, sur cette carte, qu'une **pression d'infection permanente Ouest/Est s'exerce à partir du foyer primaire « traditionnel » Angola/Nord Namibie** en direction du Botswana (qui a connu un épisode sévère récemment), de la Zambie, du Zimbabwe et du Mozambique bien entendu !

Dans ce contexte, **combien de temps les pays encore non atteints de la sous-région, en particulier l'Afrique du Sud et, par voie de conséquence, les pays de la COI, peuvent-ils espérer rester indemnes de PPCB** ?

De façon plus globale, on peut estimer que **le Mozambique peut être considéré comme un pays « à haut risque zoosanitaire », à l'interface SADC/COI.**

- **Les facteurs favorisants sont**, entre autres :

  - **La proximité de pays africains infectés** (fièvre aphteuse, PPCB),
  - **L'importation, depuis quelques années, de bovins** en provenance de la sous-région, dans le cadre du plan de **reconstitution du cheptel national**,
  - **L'existence (à confirmer) de flux commerciaux clandestins** : du Zimbabwe vers le Mozambique, puis Madagascar,
  - **Le projet d'extension de la réserve de faune sauvage du Parc Kruger** (Afrique du Sud) au Zimbabwe et au Mozambique (risque d'extension de la fièvre aphteuse, tuberculose, etc...).

- **La faiblesse actuelle des services vétérinaires** dans ses capacités opérationnelles (suivi sanitaire, système d'alerte, stratégies de lutte).

Si l'on considère que la peste porcine africaine a atteint Madagascar à partir du Mozambique, véhiculée par des eaux grasses de bateau, on peut imaginer que la fièvre aphteuse suive la même voie !

L'importation d'animaux sur pied du continent africain vers Madagascar pourrait également favoriser l'importation de PPCB vers Madagascar et la COI en général.

Ces hypothèses engagent le consultant à proposer **des analyses de risque** pour ces 2 maladies, dans le cadre du futur projet COI.

IX – PROPOSITIONS ET SOLLICITATIONS DES AUTORITES MOZAMBICAINES

- Celles-ci **donnent leur accord pour participer à un réseau régional d'épidémiosurveillance de la zone de l'Océan Indien proposé**.

- **La demande exprimée**, au cours de cette mission, par les partenaires mozambicains est la suivante :

  - **Echanger, en continu**, des informations zoosanitaires avec les pays de la COI : le Mozambique, comme l'Afrique du Sud, faisant partie de la SADC, pourrait servir **d'interface entre les 2 communautés** (SADC/COI),

  - Développer, ensemble, **des stratégies de contrôle** des pathologies dominantes (épidémiosurveillance, épidémiovigilance, système d'alerte),

  - Réaliser **des analyses de risque trans-frontalières** (fièvre aphteuse, PPCB),

  - Assurer **des formations en épidémiologie** (unité d'épidémiologie vétérinaire, DINAP),

  - Apporter un appui au laboratoire national vétérinaire pour **la formation continue en bactériologie** (PPCB), en **virologie** (cultures cellulaires) et diagnostic des hémoparasitoses (anaplasmoses, babébioses)…,

  - Soutenir un **volet animation-vulgarisation** : le futur réseau doit répondre à la demande du public et, d'ailleurs, susciter cette demande selon le vice-Ministre de l'agriculture et du développement rural.

X – RECOMMANDATIONS POUR UN APPUI SPECIFIQUE AUX SERVICES VETERINAIRES DU MOZAMBIQUE

Prenant en considération, d'une part **le risque zoosanitaire permanent** que représente le Mozambique de par sa position géographique, d'autre part, **l'offre de collaboration** au futur projet COI manifestée clairement par les partenaires rencontrés, il peut être proposé **un appui du projet en deux temps** :

1er temps :

- **Faire participer le Mozambique au réseau d'échange d'informations zoosanitaires COI,** avec un retour d'informations en provenance de la SADC,

- **Assurer des formations de laboratoire :**
  - PPCB (CIRAD-EMVT),
  - Cultures cellulaires (OVI-Ondersterspoort),
  - Hémoparasitoses (Mayotte).

- **Mettre en place des missions d'expert en analyse de risque** (fièvre aphteuse, PPCB).

2ème temps :

Apporter un appui à l'unité d'épidémiologie vétérinaire de la DINAP pour la mise en œuvre de **stratégies globales** de contrôle des épizooties transfrontalières,

- **Assurer des formations en épidémiologie** par des ateliers in situ (CIRAD-EMVT),

- Soutenir un volet **animation-vulgarisation** (CIRAD-EMVT).

XI – REMERCIEMENTS

Le consultant remercie vivement S.E. Monsieur le vice-Ministre de l'agriculture et du développement rural, les responsables de la DINAP, de l'INIVE et du projet SOFRECO/AFD pour leur accueil chaleureux et leur collaboration.

Ses remerciements s 'adressent également à Monsieur Pierre BACHERE, Conseiller de coopération et d'action culturelle près l'Ambassade de France au Mozambique, pour sa disponibilité et la parfaite organisation de cette mission.

ANNEXE 1

PRÉSENTATION DE LA RÉPUBLIQUE DU MOZAMBIQUE

Mozambique

Références Légende

Fiche pays: Mozambique
Mozambique : hymne
Drapeau de la République du Mozambique
Cartes: Afrique, Afrique : carte générale, Mozambique
Statistiques météorologiques: Beira, Maputo, Tete
Thèmes associés
Voir aussi ...

Recherche de sites web

Façade de l'Afrique minière sur l'océan Indien, la république du Mozambique couvre une superficie de 783 050 km^2 et compte plus de 3 000 km de côtes, entre la Tanzanie et l'Afrique du Sud; elle est aussi frontalière du Malawi, de la Zambie, du Zimbabwe et du Swaziland.

Géographie physique

Cartes: Mozambique

Le pays est de médiocre altitude. Les aplanissements anciens, fracturés dans la terminaison méridionale du Rift (fossés du lac Malawi et du Zambèze), couvrent une partie du Nord, à des altitudes comprises entre 700 et 1 200 m, avec quelques reliefs plus élevés (mont Namuli, 2 453 m). La plaine côtière s'étend, au sud, sur 44 % du territoire; elle est couverte d'épandages sableux et d'alluvions récentes sur des sédiments crétacés et tertiaires. Le pays est coupé par des fleuves coulant du nord-ouest vers le sud-est : au nord, le plus important, le Zambèze, puis la Save (Sabi) et le Limpopo. Descendus des plateaux, ce sont des fleuves très abondants et chargés d'alluvions

Grâce aux influences conjuguées de la mousson de l'été austral et du courant chaud du Mozambique, le pays connaît un climat de type tropical (longue saison des

pluies de novembre à mars), mais les précipitations sont plus fortes sur le littoral, dans le Nord et sur les hauteurs. La chaleur est extrême dans le fossé du Zambèze, tandis qu'au sud des montées d'air polaire peuvent abaisser la température en hiver. Sur les sols sableux du Sud s'étendent des savanes ou des formations xérophiles; dans le Centre et le Nord domine la forêt claire, infestée de glossines.

Population

Estimée à 18,4 millions d'habitants [1997], la population, parlant des langues bantoues, est fractionnée en de nombreux groupes. Il ne reste plus que quelques milliers d'Européens et d'Asiatiques. La densité moyenne est faible (23,4 h./km^2) [estimation 1997]. Tandis que la région côtière est assez peuplée, les hautes terres sont presque vides. La population était et reste essentiellement rurale, quoique la guerre civile ait gonflé les villes, notamment Beira (264 202 h.) et surtout Maputo (1,3 million h.) [1994], capitale politique et économique. Elle a aussi provoqué l'exode temporaire de millions de personnes à l'étranger (notamment au Malawi et au Zimbabwe) et durement affecté la santé publique; le pays compte un taux de mortalité infantile parmi les plus élevés au monde (146,8 ‰) [estimation 1997].

Économie

Après presque trente ans de guerre, l'économie est à reconstruire, en reprenant ce qui peut l'être dans l'héritage colonial. Façade maritime des pays miniers, le Mozambique était divisé en tronçons ouest-est, centrés sur les grands fleuves et les voies ferrées internationales: du nord au sud, les lignes du Malawi à Nacala et à Beira, les lignes du Zimbabwe à Beira et Maputo, celles qui joignent cette ville au Rand et au Swaziland. L'activité de transit a repris pour une bonne part, malgré la concurrence accrue des ports sud-africains; la production ne suit que lentement. Les productions agricoles étaient réparties assez strictement. Au nord dominaient la petite agriculture africaine et la culture obligatoire du coton; l'axe du Zambèze et les hautes terres étaient le domaine des grandes plantations européennes (coprah, sisal, sucre, thé); dans le Sud, étroitement lié au Rand, outre une agriculture vivrière souvent laissée aux femmes – suite à la migration des hommes vers les mines – existaient des périmètres irrigués produisant riz et légumes. Les plantations sont reprises par de grandes firmes et des Blancs d'Afrique du Sud s'installent dans l'arrière-pays de Maputo. Si certains Africains ont pu bénéficier de crédits pour créer des exploitations moyennes, la renaissance

d'une petite agriculture suppose la reconstitution de réseaux commerciaux.

La production industrielle n'était pas négligeable: le Mozambique colonial possédait trois cimenteries, une raffinerie de pétrole à Lourenço Marques (Maputo), trois usines textiles (Beira, Vila Perry, Vila Salazar), de petites entreprises métallurgiques; il comptait en 1975 plus de 150 000 ouvriers. La remise en état des usines est problématique. La centrale hydroélectrique de Cahora Bassa alimentera à nouveau le Rand, mais celui-ci accueillera de moins en moins les migrants mozambicains.

Histoire

Le nord du pays a été l'avant-poste des commerçants swahilis, qui fondèrent le comptoir de Sofala. Un commerce s'effectuait avec l'intérieur, notamment avec le Monomotapa; des marchands africains apportaient sur la côte or, cuivre et ivoire, et la traite des esclaves, surtout par les Yaos, fut très importante.

La domination portugaise

Thèmes associés

En 1498, Vasco de Gama débarqua sur le site de la future Lourenço Marques. Les Portugais prirent Sofala en 1525, mais ils ne contrôlèrent pas vraiment le pays. Les fiefs (*prazos*) qu'ils concédèrent au XVII^{e} siècle dans la vallée du Zambèze devinrent des royaumes esclavagistes. Venus du sud dans la première moitié du XIX^{e} siècle, des groupes ngonis renforcèrent la puissance militaire des chefferies. En 1878, le Portugal n'administrait qu'une centaine de milliers d'habitants, sur la côte. C'était trop peu pour faire valoir des droits historiques sur un empire joignant l'Atlantique à l'océan Indien; l'Angleterre cantonna les Portugais au débouché des pays miniers. Encore fallut-il de nombreuses et longues guerres, jouant des oppositions entre Africains, pour contrôler le territoire.

Le Portugal en concéda une grande part à trois compagnies à charte: à l'extrême nord, la Compagnie du Nyassa pratiqua surtout le trafic des engagés sous contrat pour d'autres colonies portugaises; la Compagnie du Zambèze établit de vastes plantations de cocotiers et cultiva le sucre dans le delta du fleuve; la Compagnie du Mozambique construisit le chemin de fer entre la Rhodésie du Sud et Beira. Au sud de la Save, on était dans l'aire d'influence du Rand sud-africain: dès 1894 était achevé le chemin de fer qui le relie à Lourenço Marques; le recrutement de mineurs en pays thonga (près de 60 000 en 1932) valait au Portugal d'importantes

rentrées d'or. Par un accord de 1928, Lourenço Marques assurait 47,5 % du trafic maritime du Transvaal.

L'exploitation économique

Arrivé au pouvoir à Lisbonne, Salazar reprit en main le territoire. Les monopoles des compagnies furent supprimés, mais elles conservèrent leurs domaines et de nouvelles plantations furent établies sur les hautes terres. Quand ils ne travaillaient pas sur les plantations, les Africains, dans le Nord, durent pratiquer la culture du coton (400 t en 1926, 23 000 en 1942, 140 000 en 1955). À un moindre degré qu'en Angola, on encouragea une petite colonisation portugaise sur des périmètres irrigués (vallée de la Maputo et surtout du Limpopo). Le développement industriel fut stimulé par de grands travaux, comme la construction du barrage de Cahora Bassa, sur le Zambèze (1969-1975): une centrale de 2 000 MW produisait un courant qui, par une ligne à très haute tension de 1 400 km, longeant la frontière, devait ravitailler à bas prix l'Afrique du Sud: c'était une manière d'intéresser celle-ci au maintien de la présence portugaise.

Le Mozambique indépendant

Cahora Bassa fut achevée quand le pays accéda à l'indépendance, après une guerre de libération conduite par Samora M%achel et son Front de libération du Mozambique (Frelimo), surtout implanté au nord, en pays makonde, et à la suite de la « révolution des œillets » à Lisbonne. L'arrivée au pouvoir, le 25 avril 1974, du général Spinola avait suscité chez les autonomistes l'espoir d'une orientation nouvelle de la politique portugaise en Afrique. De fait, le nouveau gouvernement portugais ouvrit immédiatement des négociations avec le Frelimo, et, le 25 juin 1975, le pays accéda à l'indépendance sous la présidence de Samora Machel. L'indépendance provoqua le départ de la quasi-totalité des 230 000 Portugais, qui tenaient les postes d'encadrement et le commerce, plongeant le pays dans le chaos. La nationalisation des industries et des grands domaines, la création de villages communautaires furent une nécessité autant qu'un choix idéologique ou tactique pour se concilier les pays de l'Est. Suscitée par des nostalgiques de la colonisation, appuyée par les services sud-africains, la rébellion de la Résistance nationale du Mozambique (Renamo) se nourrit des grandes maladresses de l'étatisation, et étendit l'insécurité à la quasi-totalité du pays. En 1985, 42 % du budget étaient consacrés à la guerre. Désorganisation du commerce, sécheresses, inondations multiplièrent les famines. La signature, en mars 1984, d'un traité de non-agression avec l'Afrique du Sud, l'accord avec les instances monétaires

internationales, l'abandon du marxisme-léninisme, l'adoption d'une nouvelle Constitution n'avaient pas suffi à ramener la paix (1990) qu'ont permise les efforts de l'ONU (1992). À la suite des élections de 1994, la Renamo est représentée au Parlement, mais non au gouvernement, et elle reste sur la réserve. Mais le désir de paix est tel que la reconstruction du pays paraît s'amorcer.

ANNEXE 2

MOZAMBIQUE

SITUATION ZOOSANITAIRE 2000

MOZAMBIQUE

I. NEW ACTIVITIES OF THE VETERINARY SERVICES

The establishment of the Veterinary Epidemiology Unit at the National Directorate of Livestock (DINAP) in May 2000 brought new dinamic to the Animal health Department.

The establishement of priorities in disease investigation and control according to their strategic importance for the country and region was undertaken.

The Epidemiological Information System is being established.

II. COMMENTS ON SELECTED LIST A DISEASES

1. Foot and mouth disease

   The foot and mouth disease (FMD) control programme was revised and a new approach developed taking into consideration the results of sero-surveys carried out in 1998 and 1999. The present strategy is aimed at protecting cattle cattle along the border with Kruger National Park in South Africa with vaccinations twice a year, and the Beira corridor in the central Provinces of Sofala and Manica for export reasons, since this corridor is used for animals and goods originating in Zimbabwe and Malawi. No outbreak of FMD was detected in Mozambique during 2000.

2. Lumpy skin disease

   Outbreaks of lumpy skin disease occured in eight out of ten provinces. Although incidence rates were low affected animals suffered serious lesions and often needed treatment for related diseases and skin infections.

3. Rift Valley fever

   Although a serosurvey for Rift Valley fever in the central province of Zambezia demostrated the presence of the virus, no outbreak of this disease was reported in 2000.

4. African swine fever

   Since 1994 African swine fever is being reported sporadically outside the endemic area (Tete province) and the disease completely impaired the industry.

5. Newcastle disease

   Newcastle disease is still widespread in rural areas despite of use to some extent of vaccines. A trial to use an avirulent live vaccine is being carried out.

III. COMMENTS ON SELECTED LIST B DISEASES

Multiple species diseases

1. Rabies

Rabies was reported in several provinces particularly in Zambézia and Nampula. A total of 22 cases were confirmed in 2000. Availability of vaccines is still a problem and resulted from breakdown of local production.

Cattle diseases

2. Bovine brucellosis

Brucellosis is on the increase due to the breakdown of local vaccine production. Efforts are being undertaken to correct this situation.

3. Dermatophilosis

Dermatophilosis occured in several provinces with high incidence in 2000 due to the intensive rains in the provinces of Maputo, Gaza, Manica, Zambézia and Niassa.

4. Trypanosomosis (tsetse-transmitted)

Trypanosomoses occured with high incidence in Manica, Niassa and Zambézia. Evidence of resistance to Diminazene and Isometamidium is being investigated in Zambézia province.

Sheep and goat diseases

5. Caprine and ovine brucellosis (excluding *B. ovis*)

Brucellosis in goats (*Brucella melitensis*) was studied in Maputo and Tete Provinces and a 50% prevalence rate was found.

IV. OTHER DISEASES

Adenovirus infection

An outbreak of adenovirus in poultry was reported in comercial flocks in Maputo province with high mortality rate.

	Population	Establishments
Cattle	519,778	44,770
Buffaloes	956	...
Sheep	91,731	...
Goats	758,011	...
Equidae	73	...
Camelidae	0	0
Cervidae	0	0
Swine	188,462	...
Birds	2,208,865	...
Rabbits/hares	12,550	...
	Production (kg)	**Establishments**
Fish	...	...
Molluscs	...	...
Crustaceans	...	...
	Hives	**Apiaries**
Bees	...	...

Note No. 1

LIST A AND B DISEASES	OCCUR.	SPE	Number of			CONTROL	Number of animals			Note
			Outbreaks	Cases	Deaths	MEASURES	Destroyed	Slaughtered	Vaccinated	No.
LIST A DISEASES										
Foot and mouth disease	(1985)									
Vesicular stomatitis	0000									
Swine vesicular disease	0000									
Rinderpest	(1896)									
Peste des petits ruminants	0000									
Contagious bov. pleuropneumonia	0000									
Lumpy skin disease	+	bov	11	298	10	* S V	19		45,807	
Bluetongue	(12/1995)									
Sheep pox and goat pox	-									
African horse sickness	(12/1995)									
African swine fever	+	sui	8	3,357	3,357	S	515	253		
Classical swine fever	0000									
Highly path. avian influenza	0000									
Newcastle disease	+	avi	3	818	788	S V	200	4,500	205,998	
LIST B DISEASES										
Multiple species										
Heartwater	+	bov	1	11	10					
Rabies	+	can	1	1	1	V			23,108	
		fau	1	1	1					
Cattle										
Bovine brucellosis	+	bov	1	44	...	S V	...	...	5,814	
Trypanosomosis (tsetse-transmitted)	+	bov	1	146	0	S				
Birds										
Infec bursal disease (Gumboro)	+	avi	1	90	90	S V	150		865,103	

The OIE has no information on List A and B diseases not included in the above table

Notes

1. **Animal population**: The information on fish, molluscs and crustaceans is not at the National Directorate of Livestock,and Ministry of Agriculture since the management of these animals/products became the concern of the Ministry of Fisheries.

Mesures de lutte durant la période objet du rapport : abattage sanitaire.

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* *

DERMATOSE NODULAIRE CONTAGIEUSE AU MOZAMBIQUE

Voir aussi : 29 décembre 2000, 19 août 2000, 26 mai 2000, 19 mai 2000

(***Date du dernier foyer signalé précédemment :*** 1998).

Rapport d'urgence

Traduction d'un courrier électronique reçu le 24 avril 2000 du Docteur Francisco Gomes Pinto, chef du service de santé animale, ministère de l'agriculture, Maputo :

Date du rapport : 13 avril 2000.

Nature du diagnostic : clinique et de laboratoire.

Date de la première constatation de la maladie : 11 mars 2000.

Date présumée de l'infection primaire : 5 mars 2000.

Foyers :

Localisation	Nombre
province de Cabo Delgado, dans le nord du pays (13° 07' S - 39° 00' E)	2
district de Mogovolas, province de Nampula, dans le nord du pays (15° 45' S - 39° 30' E)	1

Description de l'effectif atteint : bovins de race Nguni (animaux de tous âges).

Nombre total d'animaux dans les foyers :

espèce	***sensibles***	***cas***	***morts***	***détruits***	***abattus***
bov	4 000	...	...	...	...

Epidémiologie :

A. Source de l'agent / origine de l'infection : origine locale.

B. Mode de diffusion de la maladie : transmission probable par des vecteurs.

C. Autres renseignements épidémiologiques : l'apparition de la maladie est liée aux inondations.

Mesures de lutte durant la période objet du rapport : lutte contre les vecteurs INVERTEBRÉS

DERMATOSE NODULAIRE CONTAGIEUSE AU MOZAMBIQUE
Diagnostic clinique

Voir aussi : 19 août 2000, 26 mai 2000, 19 mai 2000, 28 avril 2000

Rapport d'urgence

Traduction d'un courrier électronique reçu le 22 décembre 2000 du Docteur Francisco Gomes Pinto, chef du service de santé animale, ministère de l'agriculture, Maputo :

Date du rapport : 18 décembre 2000.

Date de la première constatation de la maladie : 14 décembre 2000.

Date présumée de l'infection primaire : 7 décembre 2000.

Foyers :

Localisation	Nombre
19° 16' 04,3" S - 34° 13' 19,6" E (district de Nhamatanda, province de Sofala)	9

Description de l'effectif atteint : bovins dans des exploitations privées.

Nombre total d'animaux dans les foyers :

espèce	*sensibles*	*cas*	*morts*	*détruits*	*abattus*
bov	2 190	141	2	0	...

Epidémiologie :

A. Source de l'agent / origine de l'infection : inconnues. Peut-être des bovins importés.

B. Mode de diffusion de la maladie : introduction de bovins infectés puis, peut-être, transmission vectorielle.

Mesures de lutte : mise en interdit des exploitations atteintes et vaccination.

PESTE PORCINE AFRICAINE AU MOZAMBIQUE
au sud du fleuve Savé

(***Date du dernier foyer signalé précédemment au sud du fleuve Savé :*** octobre 1998).

Rapport d'urgence

Traduction d'un courrier électronique reçu le 24 avril 2000 du Docteur Francisco Gomes Pinto, chef du service de santé animale, ministère de l'agriculture, Maputo :

Date du rapport : 13 avril 2000.

Nature du diagnostic : de laboratoire.

Date de la première constatation de la maladie : 14 mars 2000.

Date présumée de l'infection primaire : 3 mars 2000.

Foyers :

Localisation	Nombre
district de Boane, province de Maputo, dans le sud du pays (26° 05' S - 32° 20' E)	4 élevages

Description de l'effectif atteint : trois foyers concernent des exploitations commerciales et le quatrième un élevage villageois.

Nombre total d'animaux dans les foyers :

sensibles	*cas*	*morts*	*détruits*	*abattus*
426	162	162	262	0

Diagnostic :

A. Laboratoire ayant effectué le diagnostic : Institut national de recherche vétérinaire (INIVE).

B. Epreuves diagnostiques réalisées : immunofluorescence directe.

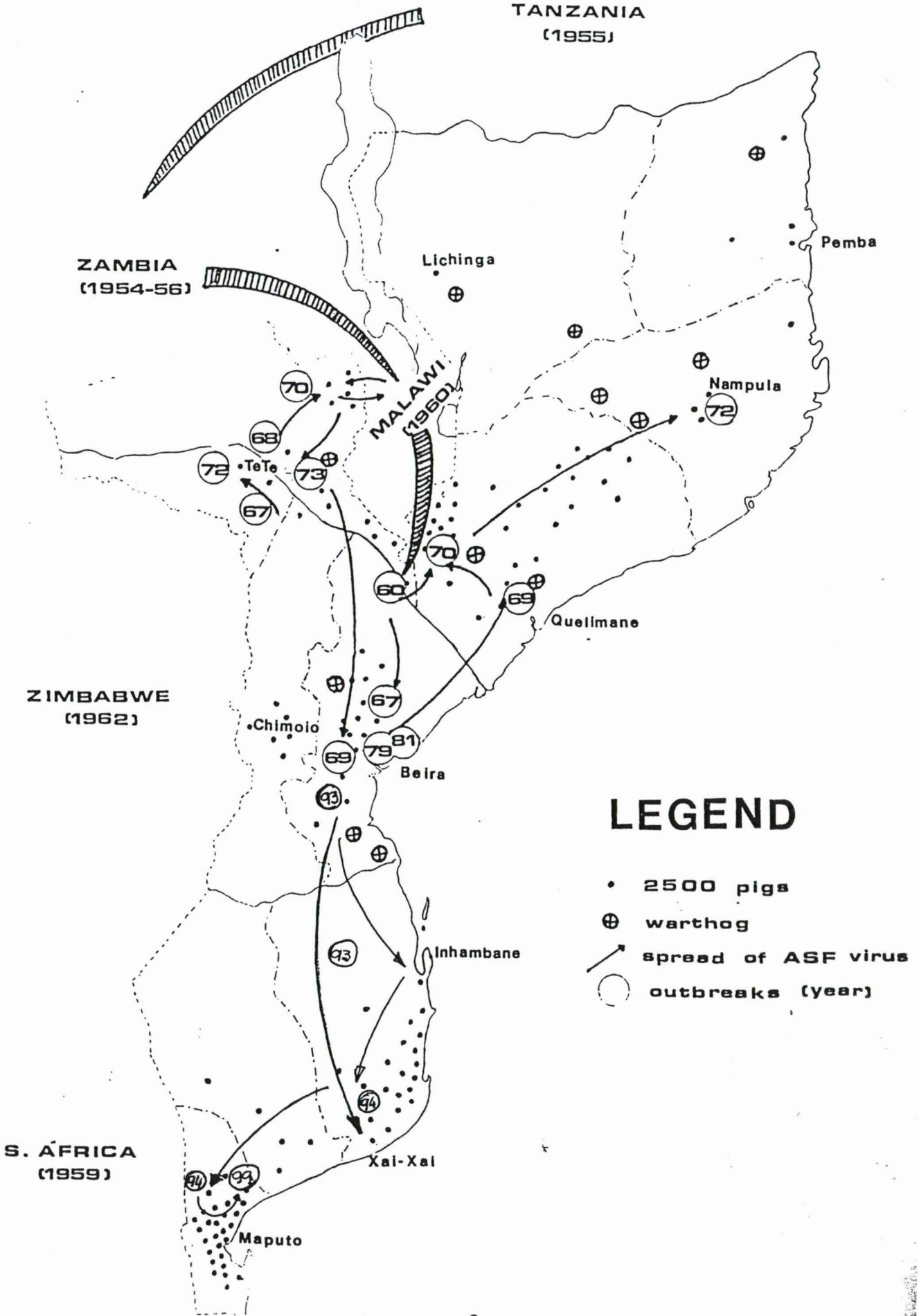
Epidémiologie :

A. Source de l'agent / origine de l'infection : origine locale.

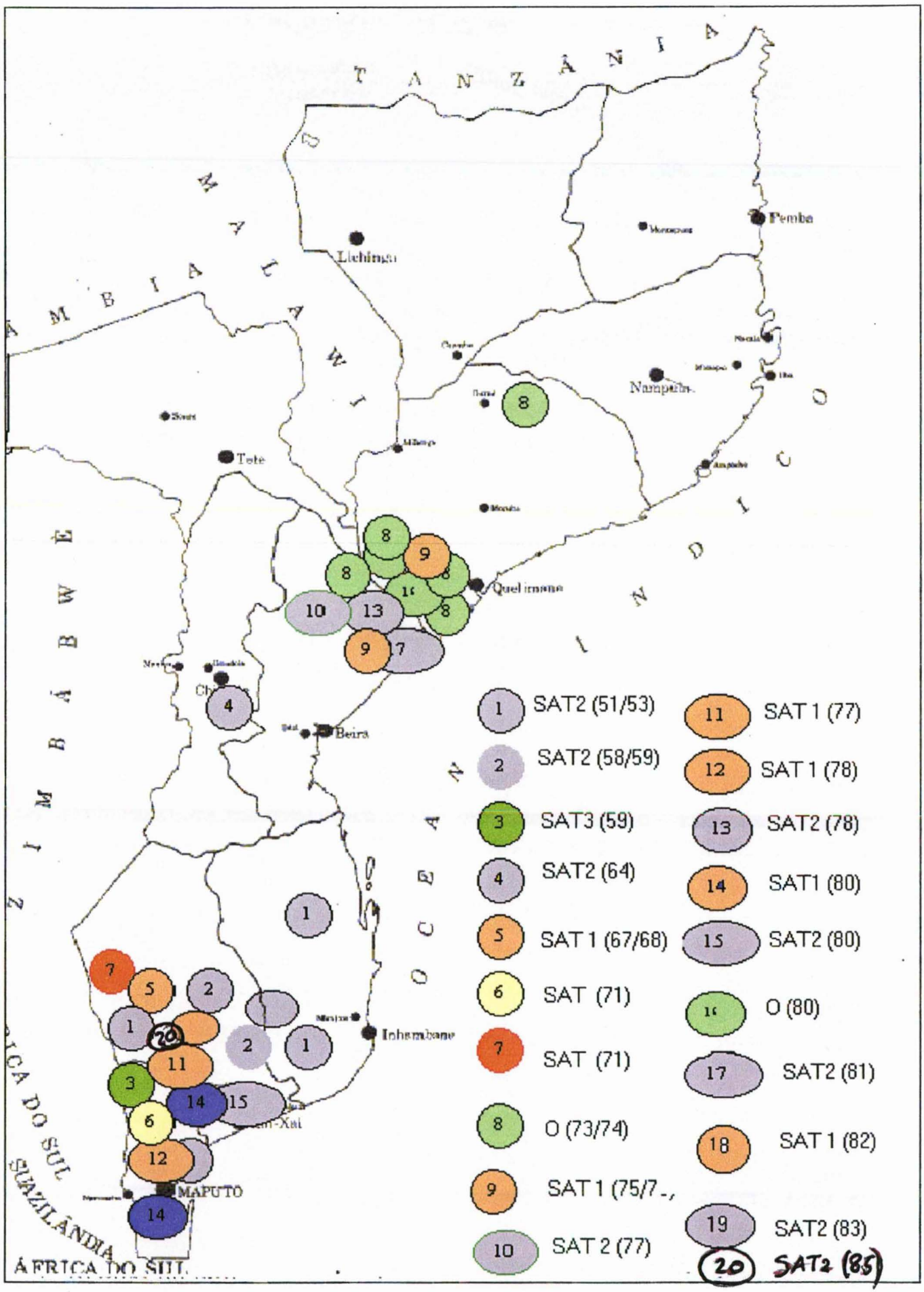
B. Mode de diffusion de la maladie : inconnu.

C. Autres renseignements épidémiologiques : la peste porcine africaine est enzootique depuis 1960 dans la province de Tété (dans le nord-ouest du pays). C'est en mars 1994 que sont apparus les premiers foyers de peste porcine africaine au sud du fleuve Savé.

MOZAMBIQUE
A.S.F. 1960-99



FIEVRE APHTEUSE AU MOZAMBIQUE : 1951 - 1985



Republic of Mozambique

MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

NATIONAL DIRECTORATE OF LIVESTOCK

MOZAMBIQUE COUNTRY REPORT

2000

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SADC

ANIMAL PRODUCTION & DISEASE CONTROL SECTOR

MOZAMBIQUE COUNTRY REPORT - 2000

Zambia, 24 – 27 April 2001

I. INTRODUCTION

The current trend of livestock production is noticeably increasing. As a result, the contribution of local production to the supply of meet consumption has also continued to increase. Although the trend is increasing over the last 5 years, a lot still has to be done to restore the historical livestock figures, namely, transference of improved animal production practices.

The floods and the cyclone "Eline" that occurred in February 2000 have had a major impact in five provinces in Mozambique for both rural and urban communities. Thousands of animals were lost and severe damage occurred in livestock infrastructures.

The livestock disease situation in 2000 was characterized by the occurrence of outbreaks of African swine fever, Newcastle Disease and Lumpy Skin Disease. Tick-borne diseases and trypanosomosis were also reported as a result of break down of dip-tanks and high tsetse challenge.

II. LIVESTOCK POPULATION DYNAMICS

Beef Cattle

In 1998 Mozambique had 30,070 cattle owners, number which rocketed to 44,770 in the year 2000 (5% of them are females). In the same period the number of bovines passed from 440,590 to 519,778 animals. The sector of small scale livestock farmers owns about 85% of the total bovine national herd, i.e., a growth of 8.1% from 1999 to 2000. The State sector is negligible with, only, 2,546 bovines.

In the year 2000 the global annual off-take rate for beef cattle was around 2.1%.

With regard to the cattle distribution in the different regions of the country, the provinces of Gaza and Tete remain with the highest concentration of cattle population with a total of 135,093 (30%) and 129,158 (24%) respectively. The ongoing restocking programme is having a positive impact and now three provinces have restored the number of cattle population recorded before the war, namely Tete, Manica and Cabo Delgado.

Fertility

The global Calving Rate is about 53.1%, the lowest in Gaza Province (43.4%) and Inhambane (45.5%) while Nampula recorded the highest (76.6%). In the year 2000 the cattle reproductive matrix was around 187,546 females.

Fertility figures presented here are based on data recorded during the annual cattle census.

Dairy Cattle

The commercial sector with up to 87.3% of the national dairy cows' herd is actually the only milk producer (97.6% of the national production) and, from 1995 to 2000 the number of dairy cows in this sector have increased ca 39.1% (from 1.039 to 1.445); On the same period national milk production increased from 953.900 to 1,302,900 litres. In 1980 Mozambique had 6,113 dairy cows and produced a total of 5,697,000 litres of milk

Currently Dairy cattle represents a small population of 1,655 milking cows, compared to 1606 females recorded in the previous year, i.e., a 3.1% increase. As opportunely reported, during the last few years there has been a trend to increase in the number of dairy farms, particularly around the Umbeluzi valley in Maputo, where the market opportunity for dairy products is more promising. Most of the dairy cattle found around Maputo belong to the commercial sector. Unlike in Maputo, most of the dairy farms found in Sofala province are own by the small-scale producers with a herd size of 5 to 20 animals.

Small Ruminants

The estimated population of sheep and goats has decreased by 0.5% (838,874 to 834,826 head) in 2000, with the highest population recorded in the Nampula province (around 154,392 animals). The sector of small scale livestock farmers own up to 98% of the total small ruminants population. However, it is recognised that the recorded numbers of small ruminants are well bellow the reality due to historical problems for the census coverage.

As in the case of cattle, the restocking process of goats taking place in various provinces of Mozambique has also been successful, as indicated by the growing population and the increasing number of beneficiaries involved in the scheme. 15,594 goats were delivered to small scale farmers during the year 2000 and from 1992 to 2000 a cumulative number of 52,979 goats distributed was achieved, mostly through NGO's initiatives. Currently the Tete and Sofala provinces are self-sufficient in goat production. From these provinces breeding stock are being used to restock new areas. There is also a potential for limited export if appropriate facilities are established.

Pigs

After an increase from 265,219 to 292,508 animals, from 1998 to 1999, in the year 2000 a 36.5% reduction was recorded bringing the current figure to 188,462 animals. This "up-and-down" pattern is imputed to the endemic occurrence of African Swine Fever which has recurrently hard hit the country. The sector of small scale livestock farmers owning up to 98.3% of the pig population is actually the only pig producer. The commercial sector is, practically, absent from the production scenario.

Over 71% of the pig population are concentrated in the provinces of Cabo Delgado, Nampula, Zambézia and Sofala.

III. LIVESTOCK PRODUCTION

General

The total meat production during the year 2000 was 6,612.7 tons compared to the figure of 7,162 tons recorded in 1999, of which 4,506.1 tons come from chicken; this corresponds to a decrease of about 8% over the past year. Beef production increased by 15%, while pork decreased in 24.5% (from 331.5 to 250.4 tons) and poultry meat also decreased by 13.6% over the same period, this means a consumption of less than half a kilo of meat per capita per annum.

Considering both recorded national production and imports, the estimated total annual consumption per capita for livestock products1 during 2000 is about 4 kg. Nevertheless a considerable volume of meat production in the rural areas (goats, chicken, game meat, etc.) is not recorded which could, surely, increase the presented figure.

Beef

In 1930 the level of slaughtering was 15.000 bovines (2,165 tons of meat) while in 1974, 89,000 bovines were slaughtered (13,700 tons of meat). During the year 2000, 10,539 bovines were slaughtered (1,554 tons of beef), i.e., a global off-take of 2.03%; This level means a 15% increase in beef production, from 1999 to 2000. The sector of small scale livestock farmers produces 62.3% of the total national beef while in 1995 it produced, only, 44.1%.

In the year 2000, 1,554 tons of beef were produced compared to the 1,350.5 tons in 1999. About 62.3% of this production came from the sector of small scale livestock farmers, who currently own 85% of the national cattle population. However the commercial sector is also growing and during 2000 a total of 583.8 tons were recorded, i.e., an increase in 7.8%.

Pork

The total production of pork meat recorded during the year 2000 was 250.4 tons of which 189.3 were produced by the sector of small scale livestock farmers. The recorded pork production represents a 24.5% decrease compared to the 1999's production. The commercial sector produced, only, 24% of the national production (a decrease of 63.7% from 1999 to 2000) as discouraged by the situation of the ASF which is endemic and continues to hamper pig production in the country. The situation of the involvement of the commercial sector in investment initiatives in this area is a boiling issue in national forums and deserves opportune intervention from the government.

Meat Production from small ruminants

Total meat production from small ruminants was 302.2 tons, an increase of 14.4% compared to previous year. The sector of small scale livestock farmers, who owns almost all the goat population in the country contributed 99.2% of total production small ruminants' meat.

1 :(meats and meats derivatives, eggs, milk and milk derivatives, and fish)

Poultry Meat

Chicken meat is the major source of meat supply in Mozambique, as a consequence of limited capacity to offer beef and pork meat to the consumers. In the period under analysis, poultry meat production decreased from 5,255.5 to 4,506.1 tons (-13.6%). However, production figures of chicken meat often show fluctuation, because, under economic circumstances prevailing in Mozambique, poultry production is highly dependent on the import of foodstuffs and day old chicks.

With regard to the trends in different production sectors it is found that one co-operative is the main supplier of chicken meat to the country and its share was about 49% of the total (2,199 tons) as compared to 50% in the previous year. Poultry meat production in the Commercial Sector also increased in 7.6% (from 1,575 to 1,695 tons).

Table Eggs

Unlike in the previous year, in the year 2000 total egg production has shown a noticeable decrease, from 548,237 to 299,127 dozens, which represents a decrease of 45.4%. This phenomena maintain the imports from the neighbouring countries as the main supplying source for domestic consumption of eggs. The commercial sector produced up to 75% of the national table eggs production. The State sector is no longer involved on table eggs production while the production of the sector of small scale livestock farmers is practically negligible.

Dairy

In the reporting period milk production was 1,302,900 litres (a 30,2% increase) compared to 1,000,900 recorded in 1999. However, the development of milk production still needs support on incentives as the existing dairy plants are still highly dependent on imported powder or fresh milk. Most of the existing dairy farms lack investments to boost up milk production.

IV. IMPORTATION

During the year 2000, 4,442 tons of beef were imported and this represented an increase in 149% compared to the previous year. Local beef production was 1,554 tons and this represents 26% of the beef consumed in the country. In relation to poultry meat, 2,736 tons were imported.

The major imports are table eggs whereby the country had to import ca 96,9% of its consumption's needs though 19,080 layers were imported during the year 2000.
A total of ca 12,000 tons of foodstuffs were imported from neighbouring countries.

On the other hand, Mozambique had to import, during 2000, 4,635 bovines, an increase in 11% compared to previous years under the effort to restock the country.

V. ANIMAL HEALTH

LIST "A" DISEASES

Foot and Mouth Disease (FMD)

No outbreak of FMD was recorded in Mozambique since 1985. The disease control strategy is based on the assumption that the primary sources of infection and reservoirs of the SAT virus are in the Kruger National Park (South Africa) and probably at Marromeu Wild life Reserve (Mozambique). In order to prevent the disease a vaccination programme was established with a bivalent vaccine in areas close to the possible sources of infection. Due to the recent outbreaks of FMD in South Africa and Swaziland the vaccination area was extended and a greater number of animals were vaccinated.

Lumpy Skin Disease (LSD)

The LSD outbreaks were frequent and widespread during 2000 despite of ring vaccination carried out in the affected areas. Twenty-four outbreaks of the disease occurred throughout the year. The high rainfall recorded in 2000 was probably the justification for the outbreaks reported. Although the mortality rate was low, the clinical signs of the affected animals were severe and affected productivity in non-native breeds of cattle.

African Swine Fever (ASF)

African Swine Fever was reported in 3 out of 10 provinces. Since outbreak reported in 1994 in south of Save river, the disease continues to occur frequently causing high mortality.

The spread of ASF is favoured by movement of pigs from endemic areas and lack of appropriate control measures (stamping out) due to the absence of compensation.

Newcastle disease (ND)

The disease is endemic and occurs annually throughout the country. The actual number of poultry affected is not known, especially in the rural areas but it is assumed that the disease affects a big proportion of birds. It is possible that the number of outbreaks in the family sector is higher than actually reported. Village poultry, which is not vaccinated against ND, are frequently wiped out, sometimes twice a year. The vaccination of rural poultry using thermo-stable inactivated vaccines is under way to reduce the impact of the disease. The I2 thermo stable live vaccine is being tested in field conditions for possible use in the future.

LIST "B" DISEASES

Tick-borne diseases (TBD)

Although Heart water, babesiosis, and anaplasmosis were reported in few provinces, it is believed that these diseases occur all over the country. East coast fever is known to occur only in the district of Angónia in Tete province. This situation is probably the result of heavy rains during 2000, which disrupted dip-tank management. The control strategy for tick-borne diseases is based on the application of acaricides. Vaccines are used in very small scale mainly in imported cattle.

Trypanosomosis

Approximately two thirds of the country is infested by tsetse fly. In order to establish the actual tsetse distribution, surveys were carried out in several parts of the country. Recent surveys in Maputo, Manica, Zambezia and Niassa provinces confirmed high rates of infection. The most frequent species of trypanosome encountered are *T. congolense* and *T. vivax* in single or mixed infections. Trials with new tripanocides are being carried out.

Dermatophilosis

Cases of dermatophilosis were registered in the central region of the country, probably due to heavy rains and less frequent and adequate dip control. A high mortality in young animals due to the disease was frequently reported.

Rabies

The disease was reported in urban and in rural areas. Until October 2000, there were 20 cases of confirmed canine rabies of which 5 were in Gaza, 5 in Nampula, and 10 in Tete.

Bovine brucellosis and tuberculosis

Bovine brucellosis and tuberculosis affected both cattle and humans and represent a significant constraint to the improvement of animal production. The prospection results have shown that the diseases continue to occur in all most of the provinces.

OUTBREAKS

2000

LIST "A" DISEASES

Annex 16-1

	LIST	PROVINCES	SPECIE	NUMBER OF OUTBREAK	ANIMAIS AFFECTED	DEATHS	LABORATORY DIAGNOSTIC		LOCATION
							YES (X)	NO (X)	
PY SKIN DISEASE (LSD)	A	Nampula	Cattle	1	500	22	X		Mogovolas district
		Cabo Delgado		1	148	12		X	Montepuez and Balama districts
		Sofala		3	605	12	X		Namatanda and Dondo districts
		Tete		3	69	1		X	District of Marávia, tete city and district of Mutarara.
		Zambézia		1	200	0	a)	a)	Maganja da Costa district
		Inhambane		2	39	5	a)	a)	Districts of Homoíne, Panda, Maxixe and Jangamo.
		Maputo		1	1.721	7	X		Districts of Marracuene, Boane, Matutuíne, Moamba and Namaacha.
		Gaza		12	a)	0	X		Districts of Massingir, Bilene, Chibuto,Chókwè and Xai-Xai city.
CAN SWINE FEVER (ASF)	A	Maputo	Swine	2	939	442	X		Districts of Marracuene, Boane and Zimpeto, Laulane, and Matola areas.
		Tete		2	a)	132		X	Marávia and Chifunde districts
		Sofala		2	3.496	1.612	X		Districts of Beira and Marromeu
WCASTLE (ND)	A	Maputo	Poultry	1	14.490	16.901	X		Matola, Infulene, Laulane, Benfica and Liberdade areas.
		Niassa		2	a)	a)		X	All districts.
		Sofala		1	a)	a)		X	All districts.
		Tete		4	a)	811		X	Chifunde, Angónia, Marávia and Moatize districts
		Zambézia		a)	a)	a)		X	All districts.

t available.

t available.

available.

OUTBREAKS (cont)

2000

LIST "B" DISEASES

Annex 16-2

	LIST	PROVINCES	SPECIE	NUMBER OF OUTBREAK	ANIMAIS AFFECTED	DEATHS	LABORATORY DIAGNOSTIC		LOCATION
							YES (X)	NO (X)	
ıT WATER (TBD)	B	Gaza	Goat	1	142	42	X		Guijá district
		Maputo	Cattle and Goat	1	20	8	X		Magude district
ɜESIOSIS (TBD)	B	Maputo	Cattle and Goat	1	150	14	X		Moamba district
ʻLASMOSIS (TBD)	B	Maputo	Cattle	1	60	4	X		Moamba district
JBERCULOSIS	B	Gaza	Cattle	1	4	4	X		Xai-Xai district
ıMATOPHILOSIS	B	Manica	Cattle	1	38	8	X		Chimoio city
RABIES	B	Nampula	Canine	5	5	5	X		Nampula district.
		Tete		10	10	10	X		Tete city
		Gaza		5	5	5	X		Xai-Xai district

VACCINATION PROGRAMME
2000

Annex 17

			PROVINCES										
			Maputo	Gaza	Inhambane	Sofala	Manica	Tete	Zambézia	Nampula	C. Delgado	Niassa	TOTAL
COMPULSORY VACCINATIONS	ANTHRAX	Planned	47.605	118.514	54.000	12.227	46.500	95.157	0	9.600	7.555	2.669	393.827
		Carried out	44.868	71.693	50.203	12.043	38.083	111.822	0	7.725	6.914	3.234	346.585
		% of execution	94,3%	60,5%	93,0%	98,5%	81,9%	117,5%	#DIV/0!	80,5%	91,5%	121,2%	88,0%
	BLACK QUARTER	Planned	17.455	39.110	14.000	5.044	17.000	37.033	0	4.800	2.493	881	137.816
		Carried out	17.725	26.045	19.345	4.632	13.604	45.509	0	3.941	2.281	1.386	134.468
		% of execution	101,5%	66,6%	138,2%	91,8%	80,0%	122,9%	#DIV/0!	82,1%	91,5%	157,3%	97,6%
	BRUCELLOSIS	Planned	5.290	14.814	6.538	1.834	11.000	25.215	577	1.500	755	333	67.856
		Carried out	5.498	0	279	0	0	37	0	0	0	0	5.814
		% of execution	103,9%	0,0%	4,3%	0,0%	0,0%	0,1%	0,0%	0,0%	0,0%	0,0%	8,6%
	FOOT AND MOUTH DISEASE	Planned	47.605	76.650	0	12.227	46.500	0	11.323	0	0	0	194.305
		Carried out	35.623	24.771	0	6.754	11.659	0	0	0	0	0	78.807
		% of execution	74,8%	32,3%	#DIV/0!	55,2%	25,1%	#DIV/0!	0,0%	#DIV/0!	#DIV/0!	#DIV/0!	40,6%
	LUMPY SKIN DISEASE	Planned	0	0	500	0	3.000	95.157	9.706	9.600	0	0	117.963
		Carried out	29.200	4.644	3.782	5.827	0	2.972	150	1.010	3.335	0	50.920
		% of execution	#DIV/0!	#DIV/0!	756,4%	#DIV/0!	0,0%	3,1%	1,5%	10,5%	#DIV/0!	#DIV/0!	43,2%
	RABIES	Planned	10.463	6.000	20.000	3.000	6.500	18.370	7.982	4.000	1.500	1.500	79.315
		Carried out	3.536	3.851	1.700	4.525	6.158	1.532	2.413	1.156	842	972	26.685
		% of execution	33,8%	64,2%	8,5%	150,8%	94,7%	8,3%	30,2%	28,9%	56,1%	64,8%	33,6%
	NEWCASTLE DISEASE	Planned	733.728	0	50.000	268.000	900.000	157.405	156.028	80.000	100.000	0	2.445.161
		Carried out	438.738	67.396	13.309	70.612	1.457.692	41.129	39.550	40.909	28.805	51.375	2.249.515
		% of execution	59,8%	#DIV/0!	26,6%	26,3%	162,0%	26,1%	25,3%	51,1%	28,8%	#DIV/0!	92,0%
FACULTATIVE VACCINATIONS	RICKETSIOSIS	Carried out	195	0	0	0	0	0	0	0	0	0	195
	INFECTIOUS BURSITIS	Carried out	107.471	0	0	0	727.932	0	0	29.700	0	0	865.103
	BRONCHITIS	Carried out	0	0	0	0	0	0	0	19.000	0	0	19.000
	RIFT VALLEY FEVER	Carried out	1.159	1.651	0	0	0	0	0	0	0	0	2.810
TREATMENTS	Trypanosomosis / prophylatic	Carried out	0	0	0	2.503	1.905	137	15.361	35.744	5.247	9	60.906
	Trypanosomosis / curative	Carried out	0	0	10	2.933	4.490	193	16.139	9.108	3.106	20	35.999

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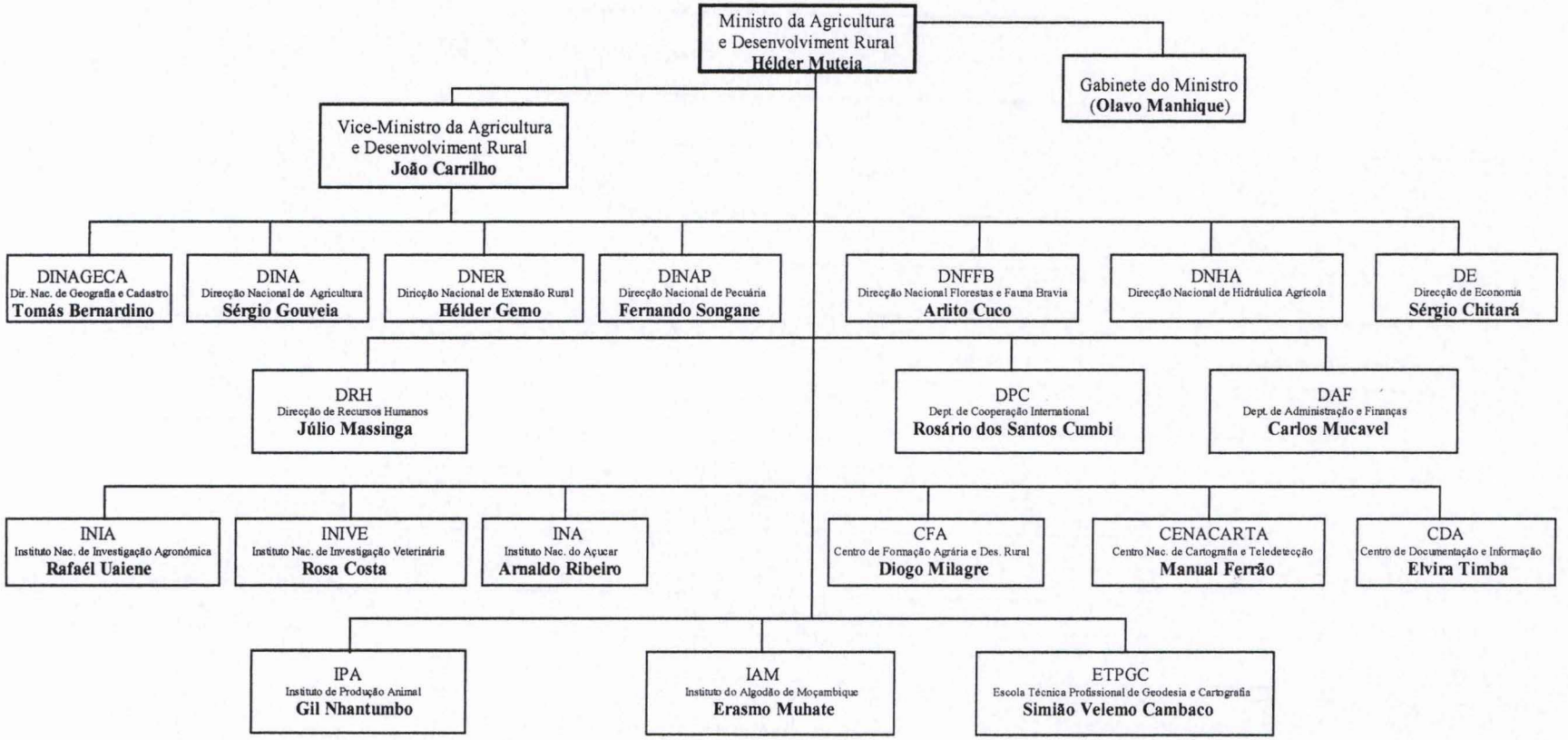
ANNEXE 3

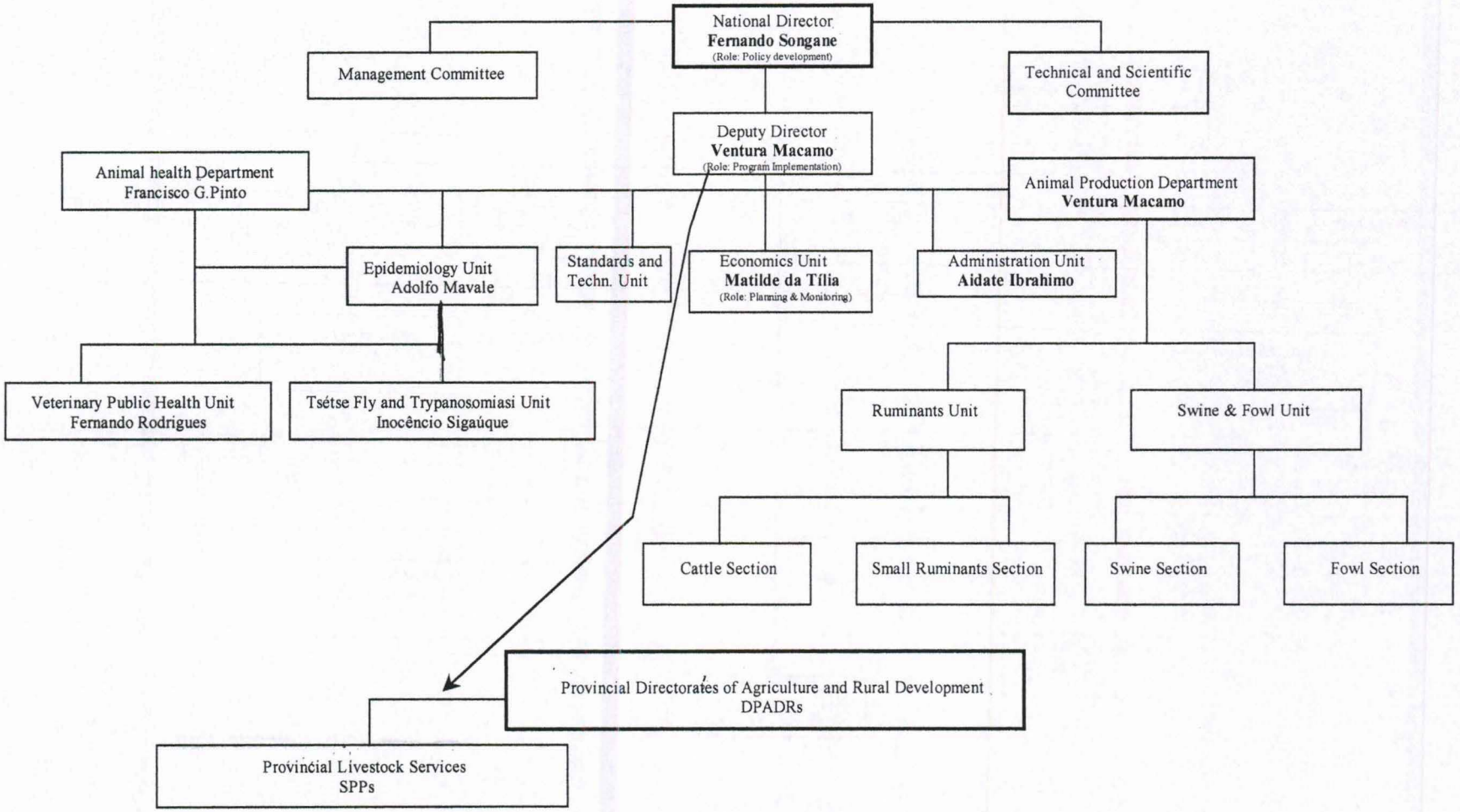
ORGANIGRAMMES

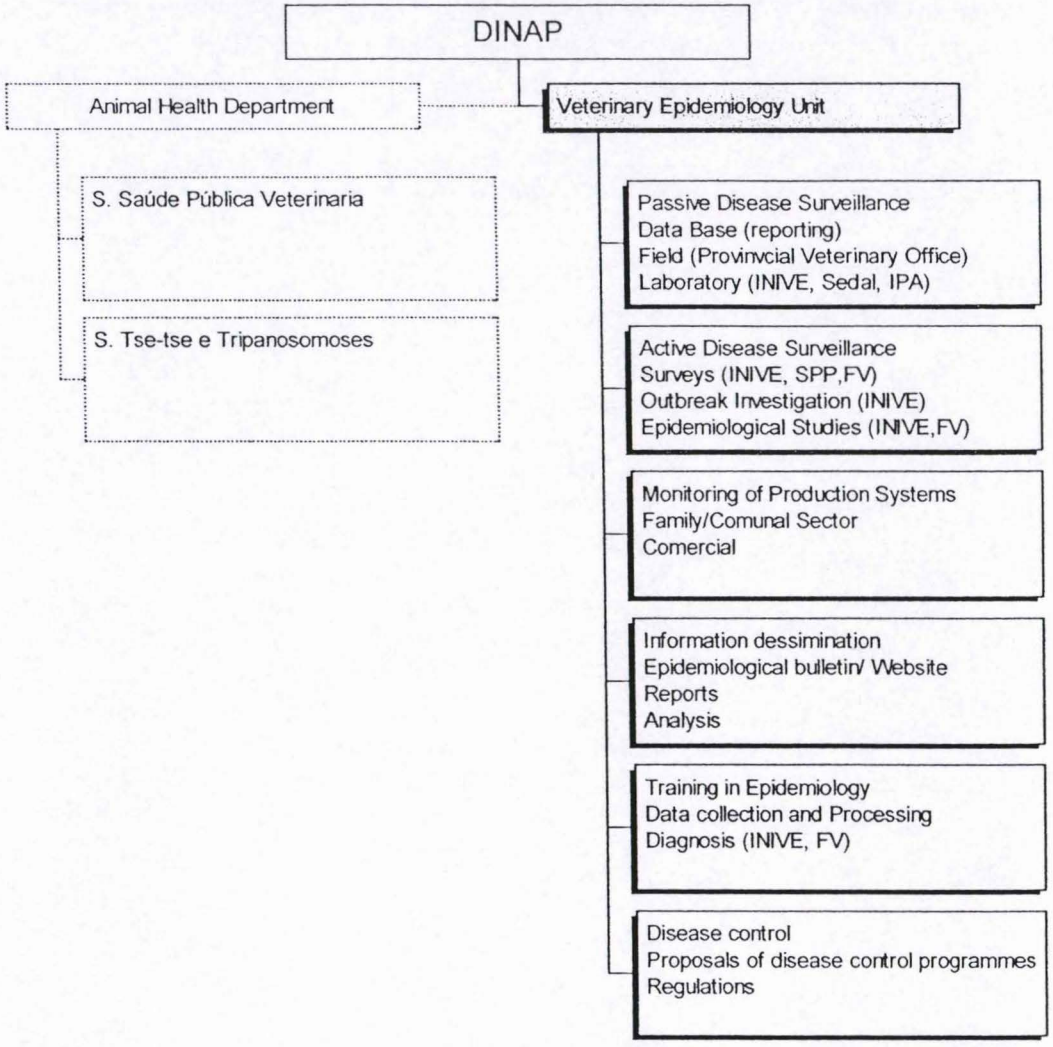
- MINISTÈRE DE L'AGRICULTURE ET DU DÉVELOPPEMENT RURAL
- DINAP
- UNITÉ D'EPIDÉMIOLOGIE VÉTÉRINAIRE

ORGANIGRAMA DO MINISTÉRIO DA AGRICULTURA E DESENVOLVIMENTO RURAL
(Nível Central)



ORGANIZATION CHART OF DINAP




DINAP
Animal Health Department
Veterinary Epidemiology Unit
S. Saúde Pública Veterinaria
S. Tse-tse e Tripanosomoses
Passive Disease Surveillance
Data Base (reporting)
Field (Provinvcial Veterinary Office)
Laboratory (INIVE, Sedal, IPA)
Active Disease Surveillance
Surveys (INIVE, SPP,FV)
Outbreak Investigation (INIVE)
Epidemiological Studies (INIVE,FV)
Monitoring of Production Systems
Family/Comunal Sector
Comercial
Information dessimination
Epidemiological bulletin/ Website
Reports
Analysis
Training in Epidemiology
Data collection and Processing
Diagnosis (INIVE, FV)
Disease control
Proposals of disease control programmes
Regulations

ANNEXE 4

DINAP

UNITÉ D'ÉPIDÉMIOLOGIE VÉTÉRINAIRE

INFORMATION ON NATIONAL SURVEILLANCE CAPABILITY

1. Has your Veterinary Services established Epidemiology Unit? Yes
2. When was the Unit established? May 2000
3. Who heads the Epidemiology Unit? (Tick appropriate answer)
   - A veterinary technician with some field experience and statistics. State the number of years
   - A graduate veterinary with some years' experience in disease surveillance. State number of years .....
   - a MSc holder in epidemiology ✓
   - A statistician or biometrecian
   - Other, specify

4. How many staff is in the Epidemiology Unit? 5 persons

5. What level of training is your data collection (frontline) staff

   - 2 years post secondary veterinary assistance course
   - 2 years post secondary agricultural technician course ✓
   - Community Livestock workers
   - Disease control guard (no formal eduction)
   - Other, specify

6. Where is the Epidemiology Unit position in your organogram (organisational structure)?
   - In the headquarters directly under the Chief Veterinary Officer? ✓(at present)
   - In the headquarters but not under the Chief Veterinary Officer?
   - In the laboratory under the National Director of Laboratory Services?
   - Other, specify

7. What is the organisational structure of the Epidemiology Unit? Please draw in the space below.

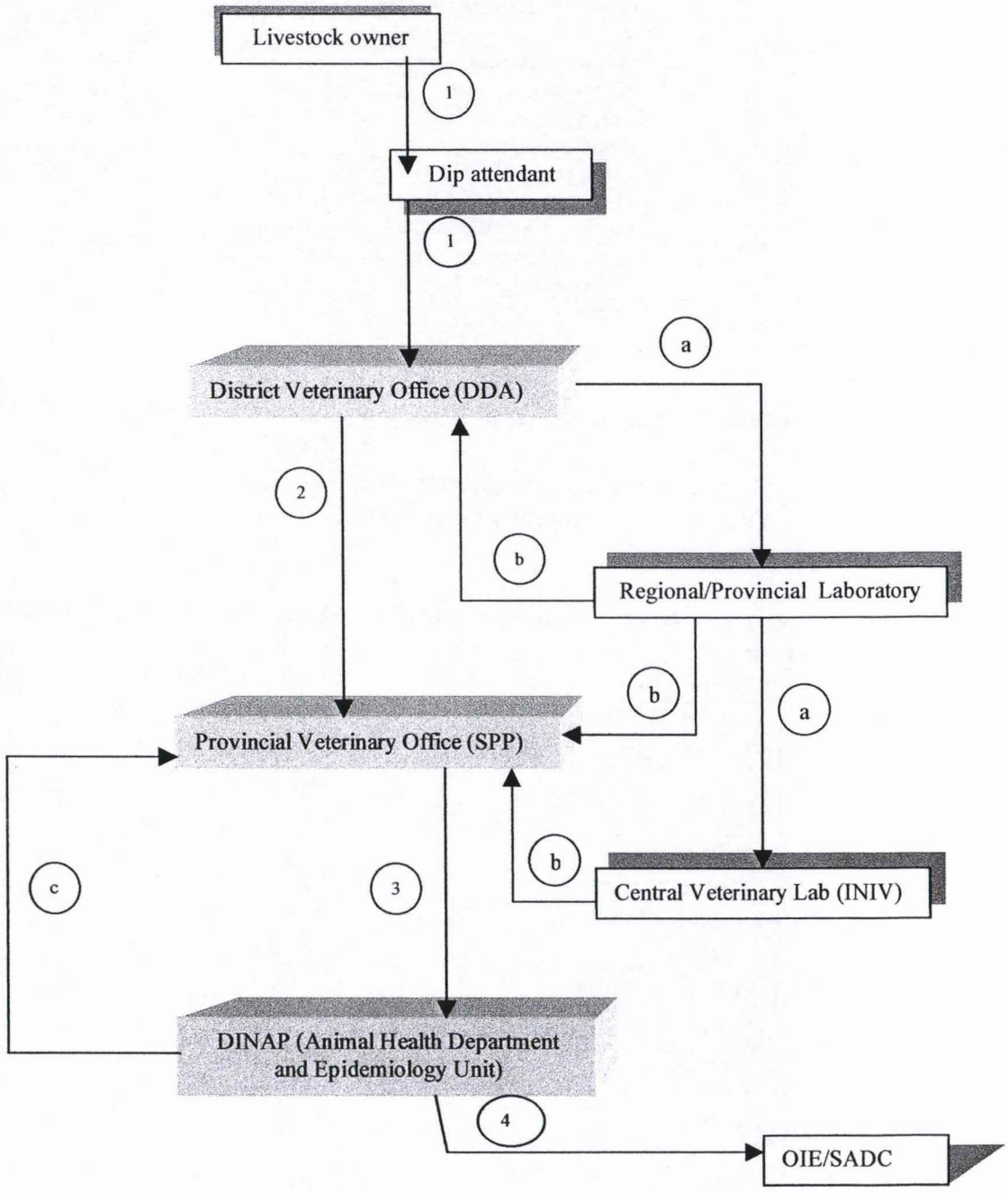
8. What type of surveillance system do you have in place? Tick the ones you are involved.
   - Passive surveillance (routine disease/field data collection)
   - Active surveillance (disease search, sero-survellance, structured field data collection)?
   - Both ✓
9. If you do both surveillance systems, which one is your priority?
   As Passive surveillance is consolidated active surveillance will get more attention.

10. What sort of ancillary data (non disease data such data on livestock production, marketing, census etc) do you collect?

Mozambique has a global reporting system we collect census and marketing data

11. Can you sketch the stages in which a disease outbreak information from the field pass through before reaching the Epidemiology Unit (data flow chart)?

Outbreak reporting
Components and flows of information



Flow chart vector	Form	Information content	Frequency
1	-	Signs of disease high morbidity/mortality	Whenever signs appear in several animals
2	-	Disease signs, number of animals affected, deaths, location of the outbreak collection of samples.	At the request of livestock owner or dip attendant
3	✔	**Outbreak Report** *First report* *Progress report* *Final report*	*Beginning* *Progress* *End*
4	✔	Emergency and Follow up reports	ASAP
a	✔	Form with clinical, epidemiological information forwarded with specimens for laboratory diagnosis	ASAP
b	✔	Communication of diagnosis, recommendations, follow-up investigation	ASAP
c	✔	Instructions on control and surveillance	ASAP

12. How do you storage and analyse the data your collect from the field ?

- Computer base disease information system ✔
- Manual disease information system
- Other, specify

13. If you have computer base information system, what is the specification of your hardware?

Computer	**Specification**
Type of Machine	**PentiumIII**
Hard disc drive	**20 GB**
CPU	300 Mhz
RAM	64
Multimedia	Yes
Internal modem	Yes
Video RAM	2
CD drive	Present
Type of Monitor	17" Color
Floppy disc drive	✔
Tape Drive	No

Printer	**Spefication**
Printer type	Deskjet 695C
Monochrome laser	No
Full raster capability	No

Software	Specification
Windows type	98
MS Office Professional	Yes
Access	Yes
Others	Mapsource
	VetServ

14. How many years on average have you used the computer(s)? 2

15. What do you use to geo-reference disease outbreak in your country?

- Map✓
- GPS✓
- Other, specify
- None

16. Which of the following disease is endenmic in your country? ~~CBPP/Rinderpest~~/Rift Valley Fever/Lumpy Skin Disease/FMD/~~CCPP~~/Newcastle Disease

17. Does the laboratory(ies) has capability to diagnose the following transboundary disease if there should be an outbreak in the country?

Contagiuos bovine pleuropneumonia (No)
Rinderpest (No)
Rift Valley Fever (No)
Lumpy Skin Disease (Yes)
Foot and Mouth Disease (No)
Contagiuos caprine pleuropneumonia (No)

18. Does the Epidemiology Unit receive reports on confirmation of suspected cases sent from the field to the laboratory every month?

No (from the laboratory) Yes from PVO

19. Field Staff Distribution: **There are 10 provinces in Mozambique.Eight of them have at least 2 Veterinary Officers at the PVO and 2 provinces have only 1 Veterinary Officer. There are 110 districts . All of them have a DVO**

Province	Cattle	Goats	Sheep	Pig	Poultry	Ducks	Rabbits
MAPUTO	30,710	33,871	4,518	8,158	331,877	63,828	5,804
GAZA	97,909	45,978	12,954	8,042	2,510	1,562	235
INHAMBANE	43,657	44,080	6,707	8,468	394	0	2,740
SOFALA	11,702	89,509	468	56,705	172,248	26,680	1,633
MANICA	39,397	20,030	785	1,476	0	0	0
TETE	93,179	100,437	6,783	11,831	59,864	0	78
ZAMBÉZIA	19,000	4,927	182	11,416	33,049	4,040	617
NAMPULA	6,796	49,512	4,191	74,529	535,792	63,231	10,843
C.DELGADO	5,801	78,907	9,399	62,864	136,327	33,825	3,557
NIASSA	4,013	15,408	9,755	1,497	5,374	357	616
TOTAL	352,164	482,659	55,742	244,986	1,277,435	193,523	26,123

20. How long does it take to receive a disease situation report from the field staff?
Variable 2 days to 1 week

Maladies prioritaires:

CLASSIFICAÇÃO DAS DOENÇAS FEITA PELOS SPPs

REUNIÃO ANUAL DE PECUÁRIA 2000 (19-23 Março 2001)

A classificação das doenças consoante a sua importância foi feita atendendo ás seguintes definições (FAO EMPRES)

- Doenças de importância estratégica: doenças com grande impacto económico, no comércio ou na segurança alimentar para o país e região que podem ser dessiminadas fácilmente para outras províncias e países vizinhos e atingir proporções epidémicas e onde a prevenção e controlo requerem a cooperação entre várias províncias ou países da região.
- Doenças de importância táctica: doenças endémicas que requerem atenção permanente e que podem evoluir para epidemias com repercussões a nível de várias províncias.
- Doenças emergentes: doenças que normalmente não existem na província ou doenças cuja incidência tem vindo a aumentar nos ultimos anos.

Provincia	Estrategica	Tactica	Emergente
Maputo	Peste Suina Africana Newcastle Gumboro	Dermatose Nodular Riquetsiose Babesiose Anaplasmose	Teleriose Tripanosomose
Manica	Newcastle	Anaplasmose, Babesiose, Teleriose, Raiva, Brucelose, Trypanosomoses	Dermatofilose, Riquetsiose
Gaza	Febre Aftosa Peste Suina Africana Doença de Newcastle	Raiva Riquetsiose Babesiose Dermatose nodular Tuberculose	Febre do Vale do Rift
Inhambane	Newcastle, Peste suina africana	Raiva, Riquetsiose Dermatose nodular Tuberculose e tripanossome	Riquetsiose, theileriose
Sofala	Peste Suina Africana Doença de Newcastle Dermatose nodular Febre Aftosa	Raiva Tuberculose Babesiose Tripanosomose	Dermatofilose Enterite vírica dos Patos

Tete	Dermatose Nodular Peste Suina Africana Doença de Newcastle Theileriose	Equinococose Hidatidose Raiva Anaplasmose Babesiose Theileriose Tripanosomose Brucelose (ovi e cap) Ectima Contagioso	Dermatose Nodular
Zambézia	Doença de Newcastle Peste Suina Africana Tripanosomose Dermatose Nodular	Dermatofilose Brucelose Babesiose Anaplasmose Tuberculose Raiva	Ectima contagioso Teleriose Riquetsiose Febre Aftosa Cenurose
Nampula	Tripanosomose Raiva Newcastle	Brucelose Babesiose Anaplasmose Tuberculose	Dermatose Nodular Dermatofilose
C. Delgado	Raiva Doença de Newcastle Tripanosomoses	Anaplasmose Tuberculose Brucelose	Dermatose nodular
Niassa	Newcastle Ectima Contagioso	Tuberculose Tripanosomose Babesiose Anaplasmose Raiva Riquetsiose	Dermatofilose Teileriose Febre Aftosa??

SITUAÇÃO EPIDEMIOLÓGICA NAS PROVÍNCIAS COM BASE NOS RELATÓRIOS ANUAIS DOS SPP E

Situação epidemiológica 2000

Prov	DN	R	PSA	TB	Br	Ri	New	Tri	Ect	Cen	Der
Maputo	+++		+++								
Gaza	+++	+++		+		+					
Inhambane	+++						++				
Sofala	+++		+++	+++			+++				
Manica		++		+	+	+		++			++
Tete	+++	+++	++				++		++	++	
Zambezia	+++	+++					+++	+++			++
Nampula	+++	+++									
C. Delgado	+++										
Niassa		++		+++		++	+++	++	++		++

DN : Dermatose Nodular; R: Raiva; PSA: Peste Suina Africana; TB: Tuberculose ; Br:Brucelose; Ri: Riquetsiose; New: Newcastle; Tri: Tripanosomose; Ect: Ectima Contagioso; Cen: Cenurose; Der: Dermatofilose.

Procedures de déclaration

1. Nacional
   1.1. Relatório de foco.
   1.1. Buletin epidemiológico mensal
   1.2. Buletin epidemiológico trimestral

2. Internacional
   2.1. Relatório de Emergência OIE (Paris)
   2.2. Relatório de Emergência SADC (Vindoek)
   2.3. Fax para os países vizinhos (List A)
   2.4. Relatório mensal OIE (Paris)
   2.5. Relatório mensal SADC (Vindoek)
   2.6. Relatório anual FAO/OIE (paris)

3. Base de dados. TADinfo (no inicio)

ANIMAL HEALTH EMERGENCY OR FOLLOW-UP REPORT

1. No. 2. Report date (dd/mmm/yy) 3. Country

4. Name of Sender 5.

6. Position

7. Telephone number 8. Fax number

9. EMail number Address

10. **Disease Name** 11. **Disease Code**

If emergency report →

12. Nature of diagnosis: ☐Suspicion ☐Clinical ☐Post-mortem ☐Laboratory

13. Date of initial detection (dd/mmm/yy) 14. Estimated date of first infection (dd/mmm/yy)

15.

Geographical location	No. of new outbreaks
Total	

16.

Species Code	Total number of animals in outbreaks				
	susceptible	cases	deaths	destroyed	slaughtered

17. Description of (newly) affected population

18. Laboratory where diagnosis made

19. Diagnostic tests used

20. Causal agent

21. Source of agent / origin of infection

22. Mode of spread

23. Other epidemiological details

24. Control measures during reporting period ☐Cn ☐Cr ☐Pa ☐Pn ☐Qi ☐S ☐Sp ☐T ☐te ☐tv ☐V ☐Vp

DIRECÇAO NACIONAL DE PECUARIA

Relatório de foco de doença

Província de .....

N. Ref. .....

1. Identificação da doença , localização e referências. *DATA: / /*

Doença			**Relatório Anterior**	
Suspeita		Código	Data:	
Confirmada			N.Ref.	
Localização			Ref. Mapa	
Distrito	Localidade		Latitude	Longitude
Extensão do foco: (Raio em Km)			**Data estimada da primeira infecção:** / /	

Atenção: O presente relatório refere-se a um período específico. Um foco de doença deve ser informado em pelo menos 3 relatórios independentes ate a sua extinção. O relatório final acumula a informação desde a data do início* do 1o relatório.

2. Dados relacionados com a população animal afectada

Espécie		*Datas*	N°. animais em risco	N° Novos casos	N°. Mortos
Período {	Inicio*	/ /			
	Fim	/ /			

No. novos focos		No. Animais destruidos			No. Animais abatidos	
					Mortos por outras causas	

Nota: O número de animais em risco no início de um período, é igual, ao número de animais em risco no fim do período anterior . O número de animais em risco no fim do período, é igual, ao número de animais em risco no início, menos os novos casos, menos as saídas***, mais as entradas** menos os animais destruidos (e) menos os animais abatidos menos os animais mortos por outras causas. As saídas incluem os animais vivos, transferidos para fora da área ou para o matadouro..No. de novos focos refere-se a número de novos locais não contiguos onde a doença ocorreu pela primeira vez no período referido.

T. Incidência	T. de ataque	T. Mortalidade	T. Fatalidade
c/(a+b)/2	*c/a*	*d/(a+b)/2*	*d/c*

3. Características da população afectada *(marque com x na caixa correspondente)*

Sexo		**Idade**		**Sistema**		**Outros**
Macho		Recem-nascido		Intensivo		
Fêmea		Jovem		Extensivo		
Castrado		Subadultos		Semi-intensivo		
Todos		Adultos		Familiar		
		Todos		Comercial		

4. Movimento de animais *(de e para o foco de doença)*

Entradas/ data	N°**	Proveniência	Saídas/ data	N°***	Destino

5.Sinais Clínicos e lesões

SINAIS CLÍNICOS	*LESÕES*

Nome:	**Telf:**	**Email:**
Categoria:	**Fax:**	**Endereço:**

6. Sumário das medidas preventivas e de controlo.

Antes do início do foco				Depois do início do foco	
Vac. Obrigatórias				Quarentena	
Vac. Facultativas				Controlo de movimentos	
Desparasitações				Destruição	
Tratamentos				Abate sanitário	
Banhos carracicidas				Vacinação	
Outros				Tratamento	
				Outros	

7. Natureza do Diagnóstico

Data de envio do material para o laboratório / /

Suspeita ☐ Clinico ☐ Post morten ☐ Laboratorial ☐

Nome do laboratório:	***Material enviado:***
Método	Resultado

Diagnóstico final: **DATA:** ___/___/___

8. Instruções do DS/UEV-DINAP e INIVE

Nome:		Categoria		Assinatura	

HARMONIZACAO DO PLANO DE ACTIVIDADES DOS SPPs VIGILANCIA EPIDEMIOLOGICA E CONTROLO DE DOENCAS NAS PROVINCIAS DE 2001

Programa/actividade	Maputo	Gaza	Inhambane	Manica	Sofala	Tete	Nampula	Zambezia	C.Delgado	Niassa
1. Vigilancia Epidemiologica										
1.1. VE Brucelose										
1.2 VE Tuberculose										
1.3 VE Tse-tse e Tripanosomoses										
1.4 VE Parasitas GI										
1.5 VE Febre Aftosa										
1.6 VE Febre do Vale do Rift										
1.7 Recolha processamento envio de dados										
1.8 Quarentenas										
1.9 Controlo de fronteiras										
1.10 Investigacao de surtos de doencas										
1.11 VE Doencas transmitidas por carracas										
1.12 VE Raiva										
1.13 Assinatura Internet e custos telefone										
1.14 Estudo do impacto vacinacao D. Newcastle										
1.15 Estudo impacto parque transfronteira										
2. Controlo de doencas										
2.1 Controlo da Brucelose										
2.2. Controlo do C. Hemático e C. Sintomatico										
2.3 Controlo da Raiva										
2.4 Controlo de carracas e DTC										
2.5 Controlo de tse-tse e tripanosomoses										
2.6 Controlo da Peste Suina Africana										
2.7 Controlo da doenca de Newcastle										
2.8 Controlo de Dermatose Nodular										
2.9 Controlo da Febre Aftosa										
2.10 Tratamentos										
3. Inspeccao de POA e estabelecimentos de proces. POA.										
4. Certificacao (animais importados e produtos)										
6. Inspeccao do Unidades de producao/tanques										
7. Capacitacao										
7.1 Promotores										
7.2 Vacinadores newcastle										
7.3 Colheita processamento dados epidem Vet										
7.4 Colheita processamento Tec. Medios										
7.5 Tse-tse distritos										
7.6 Saude publica (POA)										
7.7 Saude publica (raiva)										
7.8. Peste Suina Africana (camponeses)										
7.9 Colheita e processamento de amostras										

Provincias com activiades nao planificadas e orcamentadas de importancia primaria

Provincias com activiades nao planificadas e orcamentadas de importancia secundaria

provincias com actividades planificadas e orcamentadas.

MONTHLY ANIMAL HEALTH STATUS REPORT (Sheet 1 of 3)

Report for the month: | | | | | |
(mmm/yy)

1. | | | | | | | | |
Report Date (dd/mmm/yy)

2. |
Country

3. |
Name of Sender

4. |
Address

5. |
Position

6. |
Telephone

7. |
Fax

8. |
E-mail

Disease	Status	No. new outbreaks in month	Total no. outbreaks in month	Species Code	Number of animals in outbreaks during the month				
					susceptible	cases	deaths	destroyed	slaughtered
9	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
Foot and mouth disease A010				bov					
				buf					
				ovi					
				cap					
				sui					
				cml					
				fau					
Virus types identified:		☐O ☐SAT 2		☐A ☐SAT 3		☐C ☐Asia 1		☐SAT 1 ☐Not typed	
Vesicular stomatitis A020				bov					
				buf					
				ovi					
				cap					
				equ					
				sui					
Virus types identified:		☐Indiana		☐New Jersey		☐Not typed			
Swine vesicular disease A030				sui					
Rinderpest A040				bov					
				buf					
				ovi					
				cap					
Peste des petits ruminants A050				ovi					
				cap					
Contagious bovine pleuropneumonia A060				bov					
Lumpy skin disease A070				bov					

MONTHLY ANIMAL HEALTH STATUS REPORT (Sheet 2 of 3)

Report for the month: ____ (mmm/yy)

1. ____ **Report Date (dd/mmm/yy)** **2.** ____ **Country**

Disease	Status	No. of new outbreaks in month	No. of total outbreaks in month	Species Code	No. of animals in outbreaks during the month				
					susceptible	cases	deaths	destroyed	slaughtered
9	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
Rift Valley fever A080				bov					
				ovi					
Bluetongue A090				ovi					
Sheep pox and goat pox A100				ovi					
				cap					
African horse sickness A110				equ					
African swine fever A120				sui					
Classical swine fever A130				sui					
				fau					
Highly pathogenic avian influenza A150				avi					
Newcastle disease A160				avi					

LIST B AND OTHER DISEASES (only in exceptional circumstances)

9	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*

MONTHLY ANIMAL HEALTH STATUS REPORT (Sheet 3 of 3)

Report for the month: | | | | | | (mmm/yy)

1. | | | | | | | | | ***Report Date (dd/mmm/yy)***

2. ______________________ ***Country***

Disease	Location	For each location	
		No. of new outbreaks in month	Total No. of outbreaks in month
19	20	21	22

REPÚBLICA DE MOÇAMBIQUE
MINISTÉRIO DA AGRICULTURA E DESENVOLVIMENTO RURAL
DIRECÇÃO NACIONAL DE PECUÁRIA

BOLETIM EPIDEMIOLÓGICO MENSAL*
Janeiro - Abril 2001

CÓDIGO	DOENÇA	ESPÉCIE	Maputo	Gaza	Inhambane	Sofala	Manica	Tete	Zambézia	Nampula	C. Delgado	Niassa
A010	Febre Aftosa											
A070	Dermatose Nodular	bov		+	+	+		+			+	
A120	Peste Suína Africana	sui						+	+			
A160	Doença de Newcastle	avi	+					+			+	
B051	Carbúnculo Hemático											
B055	Riquetsiose	bov	+									
B058	Raiva	can						+				
B101	Anaplasmose	bov						+				
B102	Babesiose	bov						+				
B103	Brucelose											
B105	Tuberculose											
B107	Dermatofilose	bov							+			
B111	Febre da Costa Oriental	bov						+				
B113	Tripanossomose											
B304	Hepatite vírica dos patos											
B305	Enterite vírica do patos											
B309	Doença de Gumboro	avi	+									
B310	Doença de Marek											
C614	Carbúnculo sintomático											
	Ectima contagioso											
	Cenurose											
	Salmonelose	avi	+									

A **doença de Newcastle** ocorreu nos arredores da Cidade de Maputo nos meses de Janeiro, Fevereiro e Março e nos distritos de Zumbo e Chifunde na Província de Tete em Janeiro e Fevereiro. Em Cabo Delgado houve suspeita desta doença mas não foi indicado o distrito afectado com a mortalidade nem esta doença posteriormente confirmada. A **Peste Suína Africana** ocorreu no distrito de Zumbo em Tete no mês de Janeiro e em Quelimane em Fevereiro. A **Dermatose Nodular** ocorreu no distrito de Morrumbene em Inhambane, no distrito de Manjacaze em Gaza, nos distritos de Dondo, Beira e Nhamatanda em Sofala no mês de Janeiro; nos distritos de Chiúre e Pemba-Metunge em Cabo Delgado e no distrito de Mutarara em Tete, no mês de Fevereiro. A **Dermatofilose** ocorreu no distrito de Mocuba, na Zambézia nos meses de Janeiro e Fevereiro. A doença de **Gumboro** e a **Salmonelose** ocorreram nos arredores da Cidade de Maputo nos meses de Janeiro e Fevereiro. A **Anaplasmose**, **Babesiose**, **Febre da Costa Oriental** e **Raiva** foram registadas no distrito de Angónia, em Tete, no mês de Março.

Os dados para a elaboração desde boletim foram, na sua maioria, obtidos dos relatórios mensais dos Serviços Provinciais de Pecuária. No entanto, para permitir uma vigilância epidemiológica eficaz e para que este boletim cumpra com eficácia a sua missão de manter os SPP informados sobre a situação de sanidade animal do País, encorajamos a comunicação, através do relatório de foco, da ocorrência de qualquer doença logo que esta seja detectada. Gostaríamos de informar os colegas que a partir do mês de Maio este boletim passará a ser emitido mensalmente.

* Elaborado pela Unidade de Epidemiologia Veterinária

SITUAÇÃO EPIDEMIOLÓGICA NOS PAISES DA SADC

CÓDIGO	DOENÇA	ESPÉCIE	Malawi	Á. do Sul	Swazilândia	Zimbabwe	Zambia	Tanzania	Botswana	Angola	Lesotho	Namibia	Madagascar	Mauricias	Seycheles
A010	Febre Aftosa	bov	+	+	+										
A040	Peste Bovina														
A070	Dermatose Nodular	bov	+	+		+			+						
A060	Pleuropn. Contagiosa Bovina	bov										+			
A 080	Febre do Vale do Rift														
A090	Lingua Azul	ovi		+											
A110	Peste Equina	equ		+					+			+			
A120	Peste Suína Africana	sui	+												
A160	Doença de Newcastle	avi	+			+	+								
B051	Carbúnculo Hemático	bov, fau		+[1]		+									
B053	Equinococose														
B055	Riquetsiose	[2]		+		+			+						
B058	Raiva	[3]	+	+		+	+		+			+			
B059	Paratuberculose														
B101	Anaplasmose	bov		+		+	+		+			+			
B102	Babesiose	bov	+	+		+	+		+						
B103	Brucelose	bov		+											
B105	Tuberculose	bov	+	+											
B106	Cisticercose														
B107	Dermatofilose	bov	+			+									
B111	Febre da Costa Oriental	bov	+												
B113	Tripanossomose														
B114	Febre Catarral Maligna														
B304	Hepatite vírica dos patos														
B305	Enterite vírica do patos														
B309	Doença de Gumboro														
B310	Doença de Marek														
C614	Carbúnculo sintomático	bov	+	+					+			+			

Febre Aftosa: Na **África do sul** a situação parece estar sob controlo. Não há registo de focos recentes nas províncias afectadas de Kwazulu-Natal (início do surto a 17/09/00 - Tipo O), Mpumalanga (início do surto a 15/12/00 - SAT1) e Northern Province (início do surto a 02/02/01 - SAT2). Com excepção de Kwazulu-Natal onde no início do surto houve "stamping out", as principais medidas tomadas foram o controlo de movimentos, vacinação e vigilância epidemiológica.

Na **Swazilândia** os surtos desta doença (surto inicial a 24/11/00 - SAT1) localizaram-se na zona norte deste país, junto à fronteira com a África do Sul, e a poucos quilómetros da nossa fronteira, no Distrito de Namaacha. A estratégia de "stamping out" inicial foi alterada para vacinação. O Controlo de movimentos e vigilância epidemiológica foram outras medidas aplicadas. Também aqui a situação da Febre Aftosa parece estar sob controlo.

No **Malawi** casos de Febre Aftosa (SAT1) foram reportados em Março deste ano na mesma zona onde ocorreram o ano passado (Zona Norte de Malawi, junto à fronteira com a Zambia).

Chamamos a atenção para a ocorrência de **Dermatose Nodular** no Malawi, África do sul e Zimbabwe e de **Dermatofilose** no Malawi e Zimbabwe.

---

[1] Morreram 6 bovinos e 84 animais bravios

[2] Bovinos e pequenos ruminantes

[3] Bovinos, caprinos, ovinos, equinos, caninos, felinos e fauna bravia

REPÚBLICA DE MOÇAMBIQUE
MINISTÉRIO DA AGRICULTURA E DESENVOLVIMENTO RURAL
DIRECÇÃO NACIONAL DE PECUÁRIA

BOLETIM EPIDEMIOLÓGICO MENSAL*
Maio 2001

CÓDIGO	DOENÇA	ESPÉCIE	Maputo	Gaza	Inhambane	Sofala	Manica	Tete	Zambézia	Nampula	C. Delgado	Niassa
A010	Febre Aftosa											
A070	Dermatose Nodular			+								
A120	Peste Suína Africana											
A160	Doença de Newcastle											
B051	Carbúnculo Hemático											
B055	Riquetsiose											
B058	Raiva											
B101	Anaplasmose											
B102	Babesiose											
B103	Brucelose											
B105	Tuberculose											
B107	Dermatofilose											
B111	Febre da Costa Oriental											
B113	Tripanossomose											
B304	Hepatite vírica dos patos											
B305	Enterite vírica do patos											
B309	Doença de Gumboro											
B310	Doença de Marek											
C614	Carbúnculo sintomático											
	Ectima contagioso											
	Cenurose											
	Salmonelose											

Um foco de Dermatose Nodular ocorreu no distrito de Massangena, em Gaza no mês de Maio. Não foi possível obter detalhes deste foco visto ter sido apenas verbalmente comunicado.

Notamos, com satisfação, que a situação epidemiológica do País está óptima visto não recebermos relatórios de foco praticamente desde altura da realização da Reunião Anual de Pecuária (ou será que os surtos não são comunicados a tempo). O Boletim Mensal pretende ser um sistema de aviso prévio para ocorrência de surtos de doenças, principalmente as da lista A. Este objectivo só pode ser alcançado quando os Serviços Provinciais de Pecuária comunicarem todas as ocorrências de doenças através de Relatório de Foco tão cedo quanto estas doenças aparecerem. Os relatórios mensais normalmente chegam com um mínimo de um mês após as ocorrências.

* Elaborado pela Unidade de Epidemiologia Veterinária

SITUAÇÃO EPIDEMIOLÓGICA NOS PAISES DA SADC

CÓDIGO	DOENÇA	ESPÉCIE	Malawi	Á. do Sul	Swazilândia	Zimbabwe	Zambia	Tanzania	Botswana	Angola	Lesotho	Namibia	Madagascar	Mauricias	Seycheles
A010	Febre Aftosa														
A040	Peste Bovina														
A070	Dermatose Nodular														
A060	Pleuropn. Contagiosa Bovina														
A 080	Febre do Vale do Rift														
A090	Lingua Azul														
A110	Peste Equina														
A120	Peste Suína Africana														
A160	Doença de Newcastle														
B051	Carbúnculo Hemático														
B053	Equinococose														
B055	Riquetsiose														
B058	Raiva														
B059	Paratuberculose														
B101	Anaplasmose														
B102	Babesiose														
B103	Brucelose														
B105	Tuberculose														
B106	Cisticercose														
B107	Dermatofilose														
B111	Febre da Costa Oriental														
B113	Tripanossomose														
B114	Febre Catarral Maligna														
B304	Hepatite vírica dos patos														
B305	Enterite vírica do patos														
B309	Doença de Gumboro														
B310	Doença de Marek														
C614	Carbúnculo sintomático														

No mês de Maio não recebemos nenhuma informação da região sobre a ocorrência de doenças.

BOLETIM EPIDEMIOLÓGICO

DIRECÇÃO NACIONAL DE PECUÁRIA

Volume I, n o I
Junho de 2000

EDITORIAL
Criada a Unidade de Epidemiologia Veterinaria (UEV)

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Como resultado do esforço combinado da DINAP e do Programa de Desenvolvimento Pecuário do Sector Familiar - PROAGRI foi estabelecida a UEV cuja principal função será a de apoiar a DINAP a tomar decisões informadas sobre o controlo de doenças. Neste âmbito caberá a UEV :

1. Melhorar o sistema de Vigilância Epidemiológica Passiva com base nos dados e fontes existentes tornando-os acessíveis ás autoridades veterinárias, instituções de investigação e ensino. Esta base de dados devera concentrar-se em particular nas taxa de prevalência de doenças e sua distribuição espacial.

2. Desenvolver a capacidade de Vigilância Epidemiológica Activa i.e a capacidade para estudo detalhado da prevalência, incidência , taxas de dessiminação e avaliação económica dos efeitos das doenças e dos custos do seu controlo. Desenvolver um sistema de detecção precoce de novas doenças ou alterações rápidas de prevalência, incidência e das fontes de infecção.

3.Desenvolver uma capacidade de acompanhamento contínuo de sistemas de produção no que respeita a problemas sanitários e actividades (programas) de controlo de doenças.

4.Desenvolver a capacidade para disseminação da informação epidemiologica a todos os níveis e a rede de comunicação entre a DINAP e os Serviços Provinciais de Pecuária (SPP)

5.Desenvolver a capacidade de treino de veterinários de campo na área de Epidemiologia em particular no que respeita a : Investigação de surtos de doença, desenho e condução de prospecções, colheita processamento e análise de dados.

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Revisão: Colectivo da UEV e Departamento de Sanidade-DINAP
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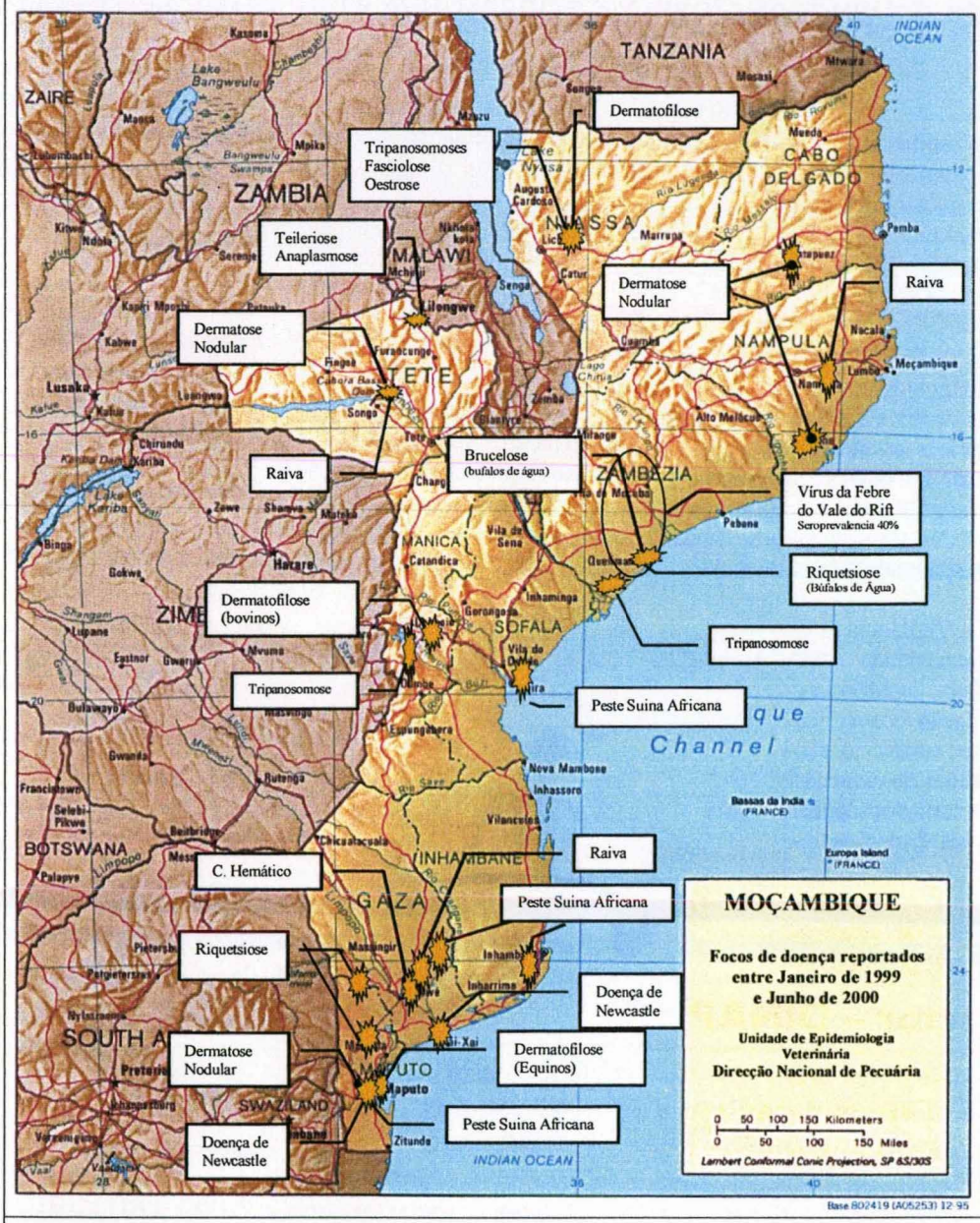
Apoio financeiro do :

PDPSF-PROAGRI

Palavras do Director – DINAP

O boletim epidemiológico (BE) vem cobrir um espaço vazio importante que tem sido uma preocupação constante da DINAP e aparece neste momento em que é criada a Unidade de Epidemiologia Veterinária (UEV). A disseminação da informação epidemiológica Nacional, Regional e Internacional tem como objectivo alertar e informar os Serviços Provinciais de Pecuária (SPPs) sobre os dados gerados pelos próprios de forma isolada, de modo a que possam estar atentos e preparados para prevenir e se necessário enfrentar as doenças de caracter expansivo. O BE pretende também apresentar assuntos de interesse nacional e regional no concernente a doenças da lista de prioridades da SADC. O objectivo do boletim só será alcançado se a UEV e os SPPs mantiverem o fluxo de informação nos dois sentidos, em particular no que diz respeito aos focos de doença com os detalhes necessários. Faço votos que os intervenientes neste processo valorizem esta iniciativa e assumam a responsabilidade de reiniciar um processo por vezes interrompido mas de grande importância para todos. *Fernando Songane*

A situação epidemiológica no país depois de intensas chuvas caídas no início do ano, caracteriza-se pela ocorrência de vários focos de doenças epidémicas , e um aumento da frequência de doenças endémicas conhecidas. Assim desde o início do ano foram reportados focos de **Peste Suina Africana** em Maputo e na Beira, **Dermatose Nodular** em quase todo país com particular importância em Cabo Delgado (Montepuez) , Nampula (Mogovolas), e Maputo (Moamba). Registaram-se também aumentos da frequência de casos de **Dermatofilose** em Maputo, Manica e Niassa onde existem casos de doença intratáveis. Nos países vizinhos também têm sido reportados focos de doenças



expansivas. Na **Tanzania** a **Pleuropneumonia contagiosa** continua a aparecer, e no norte do Malawi e Zambia a **Febre Aftosa** apareceu com força. A **Drematose Nodular** apareceu no Botswana.Uma série de doenças endémicas têm ocorrido com maior frequência em todos os países da região, com particular destaque para as **tripanosomoses**. Esta doença tem ocorrido com agressividade no distrito do Chinde, província da Zambézia, onde a Empresa Madal tem um considerável efectivo de gado, apesar de esforços continuos de prevenir e tratar a doença com recurso a tripanocidas. Esta problemática vai merecer particular atenção da Repartição de Tripanosomoses no próximo ano. A incidência desta doença também aumentou na província de Manica e em Niassa. Embora a doença não tenha ocorrido a circulação do vírus da **Febre do Vale do Rift** na Província da Zambézia demostrada pela alta seroprevalência continua a preocupar não só a DINAP mas também os Serviços de Veterinária dos Países vizinhos, depois da ocorrência de casos desta doença na Africa do Sul no início de 1999. Por esta razão e pelas condições climáticas prevalecentes este ano dedicamos espaço a esta doença que também é uma zoonose. A situação epidemiológica do país só poderá ser conhecida quando os Serviços Provinciais de Pecuária investigarem (com a ajuda dos laboratórios de diagnóstico) e reportarem de forma sistemática as causas de morte e doença que venham a surgir. Neste sentido e com o objectivo de sistematizar a informação sobre focos de doenças de declaração obrigatória na região (SACD) e a nível Internacional a Unidade de Epidemiologia Veterinária introduziu a título experimental uma proposta de relatório de foco que se pretende torne-se efectiva até ao fim do presente ano. Mandamos para todas as províncias este material e esperamos comentários em relação ao mesmo. Entre Setembro e Outubro do presente ano o assunto deve merecer uma reflexão profunda quando a UEV iniciar as suas deslocações ás províncias (ver programa de trabalho da UEV em 2000) para treino e harmonização de procedimentos de vigilância epidemiológica. O mapa reporta os focos de doença ocorridos desde Janeiro de 1999 a Junho de 2000.

Pela UEV Aldolfo Mavale

FEBRE DO VALE DO RIFT (FVR)

Carlos Lopes Pereira

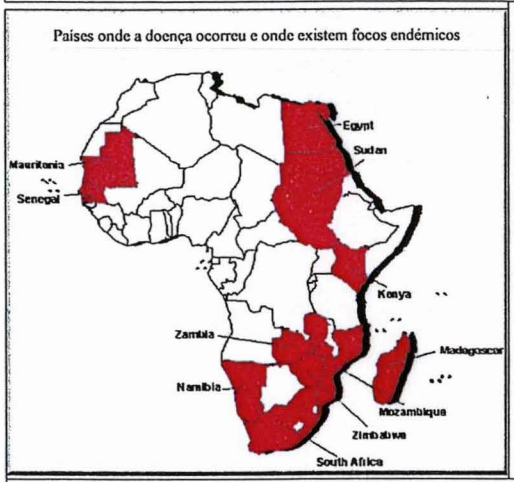
A FVR é uma perigosa zoonose. A transmissão ao homem ocorre atravéz da picada dos mosquitos e por contacto com sangue, líquidos corporais ou tecidos de animais infectados o que pode acontecer na altura do abate ou quando se manuseia fetos abortados.

OS PROCEDIMENTOS DE NECRÓPSIA E O MANUSEAMENTO DE TECIDOS PARA ENVIO AO LABORATÓRIO RESULTOU NO PASSADO EM MUITAS INFECÇÕES EM VETERINÁRIOS E PESSOAL DE LABORATÓRIO COM SÉRIAS CONSEQUÊNCIAS . DEVE-SE TER MUITO CUIDADO AO MAUSEAR MATERIAL SUSPEITO DESTA DOENÇA.

CARACTERÍSTICAS DA DOENÇA

A primeira indicação do início de um foco de proporções epidémicas é frequentemente a ocorrência de abortos em ovinos. Os sinais clínicos tendem a não ser específicos tornando-se difícil reconhecer casos individuais. A ocorrência de casos de aborto e doença em ruminantes e ao mesmo tempo em humanos depois de chuvas prolongadas é característico de FVR. A doença já ocorreu em vários países africanos no passado depois de ter aparecido pela primeira vez no vale do Rift no Kenya. O vírus só foi isolado em 1930. Na região austral de África a doença foi observada pela primeira vez em 1950. Durante este foco 100.000 ovinos morreram e mais 500000 abortaram. Durante 1977 e 1978, uma epidemia de grandes proporções ocorreu no Senegal, Mauritânia e Egipto e outra vez em 1993. Mais de 200000 pessoas foram afectadas e pelo menos 800 morreram. Em Fevereiro de 1999 houve casos de FVR na Africa do Sul na província de Mpumalanga. Três funcionários dos Serviços de Veterinária contrairam FVR depois de realizarem autopsias em animais infectados no "Kruger National Park" e reservas de caça próximas.

A probabilidade de ocorrência desta doença em Moçambique depois das intensas chuvas caídas no princípio do presente ano é grande . Os primeiros focos confirmados desta doença ocorreram em Moçambique em 1969 entre Março e Julho no Sul de Moçambique (Mariquissase, Chibuto, Xai-Xai, Lumane, Macaneta, Marracuene, Infulene e Baleluane). Um foco endémico desta doença foi identificado em 1996 e reconfirmado em 1999 na província da Zambézia. Trinta e sete por cento (37%) dos bovinos e 51% dos búfalos de água foram serológicamente positivos. Uma prospecção realizada em mulheres grávidas de oito províncias (norte, centro e sul) em 1983 encontrou-se uma taxa de sero-positivos de 2%. Neste estudo as maiores taxas de prevalência foram encontradas nas áreas onde o gado bovino e búfalos selvagens se encontram em maior número e em áreas perto da costa ou ao longo das margens dos rios. Nos humanos a doença é semelhante á gripe com febre, tremores, dores de cabeça, fotofobia ,anoréxia, hemorragias petequiais, náusea, vómito e epistaxis. Nas pessoas infectadas a complicação mais frequente ocorre 1 a 3 semanas depois do episódio febril com retinite geralmente bilateral e perda total de visão. O quadro lesional nos animais caracteriza-se por marcada leucopenia durante os primeiros 3 a 4 dias correspondendo ao pico de febre e virémia com desvios significativos de enzimas relacionadas com dano hepático. As lesões mais severas podem ser encontadas nos fetos abortados com o fígado aumentado de volume, mole e friável com coloração amarelo-acastanhada ou vermelho acasta-



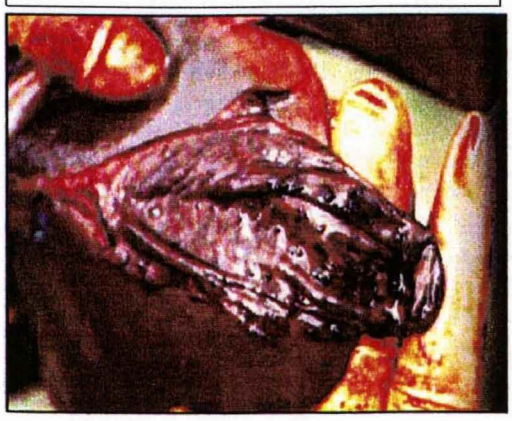
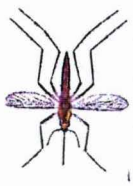


Fig. 1 Hemorragias na vesícula biliar de um animal adulto.



Mosquitos Aedes e Culex responsáveis pela transmissão da FVR aos animais.

Fig. 2 Aspecto do fígado de um ovino adulto

nhada. Congestão e hemorragia está normalmente presente no tecido hepático com focos de descoloração.

A icterícia é marcada nos animais adultos com a presença de hemorragias e edema na visícula biliar, abomaso e presença de sangue no instestino. Os ganglios superficiais e profundos estão aumentados de volume, edematosos e com hemorragias petequiais. O baço está aumentado de volume e com hemorragias na cápsula. A necrose hepática é a lesão mais evidente do ponto de vista microscópico.

As amostras a serem enviadas para o laboratório são sangue em EDTA e soro obtidos de animais com febre, pedaços de baço e fígado fresco e em formalina. O material deve ser enviado para o laboratório. Caso se preveja demora da chegada das amostras frescas ao laboratório as mesmas devem ser preservadas em glicerol –salino (50:50).

O controlo desta doença deve considerar os seguintes aspectos: (i) controlo de vectores com insecticidas (ii) movimento de animais para zonas altas, (iii) controlo de movimento de animais e (iv) imunização que é de facto o único método prático. Esta imunização preventiva só tem sentido se houver a possibilidade de prever a ocorrência da doença por causa dos grandes períodos inter-epidémicos. Em caso de foco todos os ruminantes devem ser vacinados imediatamente com vacina inactivada e revacinado depois de 2 a 4 semanas. O Uso de vacinas atenuadas só poderá ser considerada se o foco se alastrar para fora da área inicial. A DINAP está a envidar esforços no sentido de adquirir vacinas para vacinar preventivamente as áreas de maior risco levando a cabo simultâneamente actividades de vigilância epidemiológica por existir alta probabilidade de ocorrência desta doença no presente ano.

Material composto com base em informação existente no EMPRES. Fotografias extraidas do livro "Infectious Diseases of Livestock" Ed. Por J.A.W. Coetzer, G.R. Thompson e R. C. Tustin.

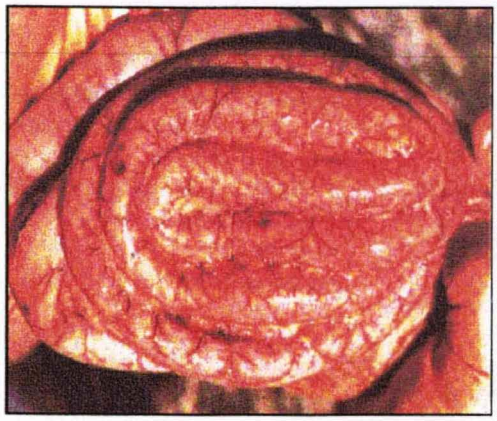


Fig. 3 Numerosas hemorragias petequiais na serosa dos intestinos de um bovino adulto

Fiig. 4 Numerosas petéquias e equimoses a mucosa do abomaso de um ovino recém nascido.

Controlo da Doença de Newcastle (DN) com Vacinas Termostáveis

Robyn Alders

As vacinas termostáveis contra a DN estão a ser experimentadas em Moçambique desde 1995. O Instituto Nacional de Investigação Veterinaria (INIVE) está neste momento a produzir a vacina viva avirulenta I2 e os resultados dos ensaios são promissores.

As galinhas constituem um importante recurso para as populações nas zonas rurais e peri-urbanas do país. A DN constitui provávelmente a principal causa de morte de galinhas nestas zonas . A única estratégia viável para a prevenção da DN é o reforço da imunidade contra esta doença na população de galinhas susceptíveis. As vacinas comerciais existentes não constituem uma alternativa viável para o controlo da DN neste sector por serem sensíveis ao calor e só estarem disponíveis em embalagens contendo grandes quantidades dificultando portanto a sua utilização. As vacinas termostáveis contituem uma alternativa viável nas condições de campo e onde a rede de frio é praticamente inexistente. A vacina I2 produzida pelo INIVE deve ser usada tendo em conta as seguintes instruções:

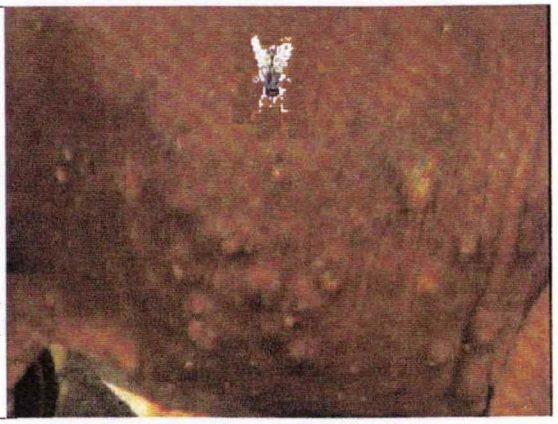
- **Não** vacinar galinhas doentes.
- Revacinar de **4 em 4 meses** .
- **Use uma gota** por galinha (independentemente da idade) *(Continua na pagina 6)*
- Para **diluir um frasco** de 250 doses da vacina precisa 7,5 ml de água fresca e apropriada (veja em baixo) para usar com

DERMATOSE NODULAR

Luísa Q. Patrocínio

A Dermatose Nodular é uma doença de declaração obrigatória que se caracteriza por: febre, múltiplos nódulos espalhados pela pele, e placas necróticas nas mucosas.

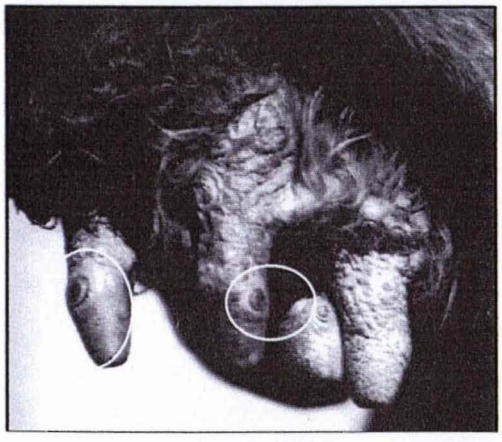
Esta doença é causada por um capripox vírus. A distribuição geográfica limita-se ao continente Africano. Já occorreu em alguns países do Médio Oriente. Embora a doença, não cause alta mortalidade ela origina perdas económicas importantes, devido á debilitaçao prolongada, temporária ou permanente cessação da produção de leite, infertilidade tanto no macho como na fêmea, abortos, bem como lesões a nível da pele, podendo esta ser completamente rejeitada. A taxa de morbilidade é de 5 – 45 % e a taxa de mortalidade é geralmente de menos de 10 %. Os abortos ocorrem em cerca de 10 % das fémeas prenhas.



O modo de transmissão desta doença é ainda mal conhecido, existindo porém evidência de que os insectos jogam um papel importante na sua disseminação . A transmissão pode ocorrer também em pontos comuns de abeberamento podendo confirmar assim a transmissão da doença a partir da saliva de animais doentes.

A Dermatose Nodular tem maior prevalência durante a época de chuvas e em locais húmidos não querendo com isto dizer que não possa ocorrer durante a época sêca.

Na fase inicial os sinais clinicos não são muito especificos. Os animais permanecem febris por um período de mais ou menos 14 dias durante os quais aparece inapetência, sialorreia, lacrimejamento seguido por vezes de conjuntivite e ainda descarga nasal mucóide ou mucoporulenta .Os nódulos cutâneos ocorrem geralmente 4 a 10 dias depois de se ter iniciado a febre. Estes nodulos são bem circunscritos, redondos dolorosos envolvendo para além da pele também a mucosa dos tractos gastrointestinal, respiratório e genital. Do ponto de vista patogénico existe uma vasculite e linfangite resultando em edema e lesões



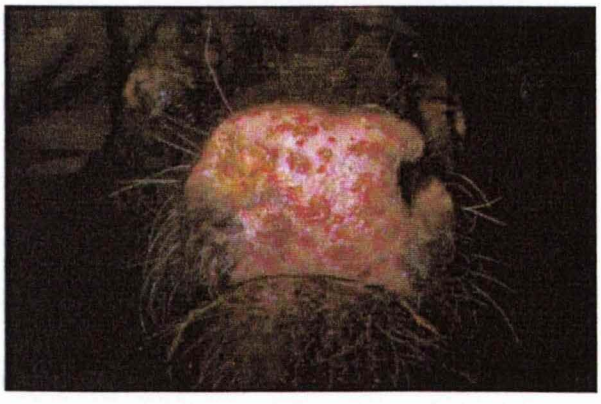
Lesões nos tetos

O diagnóstico é baseado nas lesões da pele e mucosas.

O isolamento do vírus das lesões da pele pode ser usado para confirmar o diagnóstico de campo.

A dermatose nodular pode ser confundida com outras doenças virais que também apresentam lesões na pele. Lesões causadas por insectos, infecções causadas por *Demodex* e besnoitiose podem ser confundidas com lesões associadas á Dermatose Nodular.

O controlo desta doença tem como pilares fundamentais a vacinação e a segregação dos animais. Pelo facto dos artrópodes serem provávelmente importantes na sua transmissão o contolo do movimento de animais bem como as quarentenas são importantes, mas a vacinação dos efectivos das zonas em risco é essencial. A vacinação deve ser feita antes do inicio das chuvas. A vacina viva atenuada (Neethling type) confere imunidade para o resto da vida . Os vitelos devem receber um reforco



Lesões no Chanfro

Orquite

DIRECÇÃO NACIONAL DE PECUÁRIA

Endereço:
Ministerio da Agricultura e
Desenvolvimento Rural
Direcção Nacional de Pecuária
Praça dos Herois Moçambicanos

Telefone: (258) (1) 460494
Fax: (258) 1 460479
Email: uevdinap@teledata.mz

DINAP

Nós estamos na Internet
http://www.tropical.co.mz/~vetline/

os conta gotas fornecidos pelo INIVE.

Água para a diluição da vacina -
- ferver água potável da zona antes, e deixar arrefecer num recipiente coberto
- não usar recipientes metálicos
- não usar água canalizada/tratada da torneira porque contém o químico cloro (se não existe outra fonte de água, pode deixar, durante a noite, a água da torneira num recipiente de vidro, plastico ou de barro para que o cloro evapore)

Conservação e duração da vacina
- esta vacina é termoestável mas isto não significa que pode ser deixada ao sol e exposto à luz.
- NUNCA CONGELAR
- na geleira a 4 °C dura um ano
- fora da geleira num sítio escuro e fresco dura 2 meses, sem estar diluído
- transportar para o campo usando uma caixa isotérmica e gelo ou meter a vacina num pano molhado dentro dum cesto de palha com ventilação e tapado.

Depois de diluir a vacina, está só poderá ser usada por um periodo máximo de 2 dias da seguinte forma:

- primeiro dia ⇒ 1 gota por galinha
- segundo dia ⇒ 2 gotas por galinha
- terceiro dia ⇒ deitar a vacina fora

COMUNICAÇÃO POR CORREIO ELECTRÓNICO COM A MAIORIA DOS SERVIÇOS PROVINCIAIS DE PECUÁRIA JÁ É POSSÍVEL

@@@@@@@@@@@@@@

O projecto **PDFSF-PROAGRI** financiou aquisição de computadores e a assinatura de contas de correio electrónico.

Província	Endereço
Maputo	dpap.maputo@teledata.mz
Gaza	gaza.spp@teledata.mz
Inhambane	inhambane.dpap@teledata.mz
Manica	spp.manica@teledata.mz
Tete	dpaptete@teledata.mz
Zambézia	quelimane.dpap@teledata.mz
Sofala	aprosofala@teledata.mz
Niassa	dpap.niassa@teledata.mz
Nampula	nampula.dpap@teledata.mz
Maputo UEV	uevdinap@teledata.mz
Maputo INIVE	inive@cfmnet.co.mz

PROGRAMA DA UEV ATÉ DEZEMBRO DE 2000

Até ao fim do presente ano a UEV propõe-se levar a cabo varias actividades com o objectivo de consolidar e harmonizar o sistema de vigilância epidemiológica no país. Estas acções vêm a acontecer em simultâneo com a entrega á maioria das províncias de meios de transporte e o estabelecimento de uma rede de computadores e correio electrónico nos SPPs. O programa prevê seminários por grupos de província a serrem realizados numa delas para discutir o relatório de foco, parametros epidemiológicos , epidemiologia participativa e noções de correio electronico/internet bem como manutenção básica de computadores. Está também previsto uma prospeccao serologica de Febre do Vale do Rift na Provincia da Zambezia, e a organização do segundo curso sobre carraças e doenças transmitidas por carraças para veterinários de 5 províncias.

BOLETIM EPIDEMIOLÓGICO

DIRECÇÃO NACIONAL DE PECUÁRIA

Volume I, n º 2
Fevereiro de 2001

EDITORIAL

Febre Aftosa na Africa do Sul e Swazilândia ameaça o Sul de Moçambique

Moçambique não regista qualquer foco de Febre Aftosa desde 1984. Em Novembro de 2000 animais infectados provenientes de uma unidade de engorda em Middelburg (A. Sul) foram detectados no Matadouro de Matsapha na Swazilândia com lesões. Alguns destes animais eram originários da região de Komatipoort perto da nossa fronteira onde depois das cheias do ano passado se verificou a penetração de búfalos do Parque Kruger a partir da vedação destruída. A nível das províncias de Maputo e Gaza foram tomadas medidas preventivas imediatas com a interdição de importações e a inspecção e vacinação de mais de 70000 bovinos em mais de 70 locais em menos de 2 meses. Esta resposta pronta e adequada só foi possível devido á dedicação e trabalho árduo do pessoal dos Serviços Provinciais de Pecuária de ambas as províncias, ao acompanhamento atempado dos desenvolvimentos nos países vizinhos pela UEV e Departamento de Sanidade e à implementação de uma estratégia de prevenção adequada. Mais de 3 meses depois dos focos nos países vizinhos, alguns muito próximos da nossa fronteira, a Febre Aftosa ainda não foi detectada em território nacional.

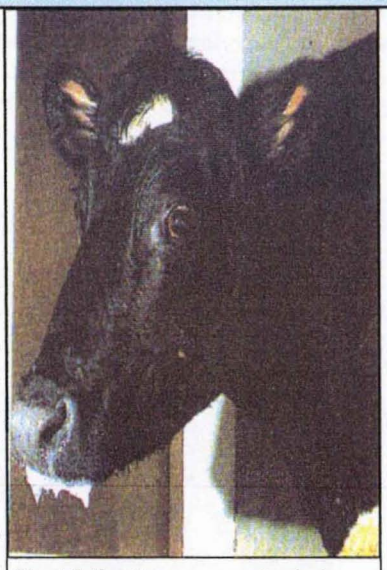


Fig. 1 Salivação e espuma são sinais característicos de Febre Aftosa. (Ministry of Agriculture, Fisheries and Food.UK reference book 400)

Praça dos Herois Moçambicanos
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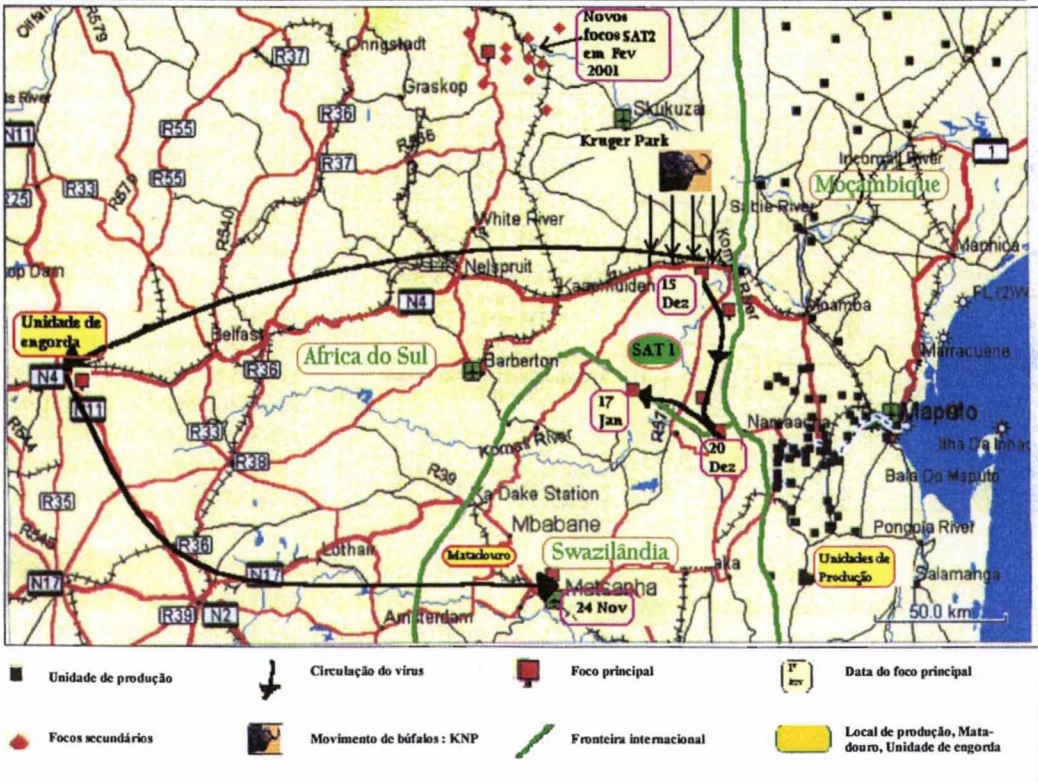
Neste número:

Febre Aftosa na África do Sul e Swazilândia de Novembro de 2000 a Fevereiro de 2001 (UEV-DINAP)



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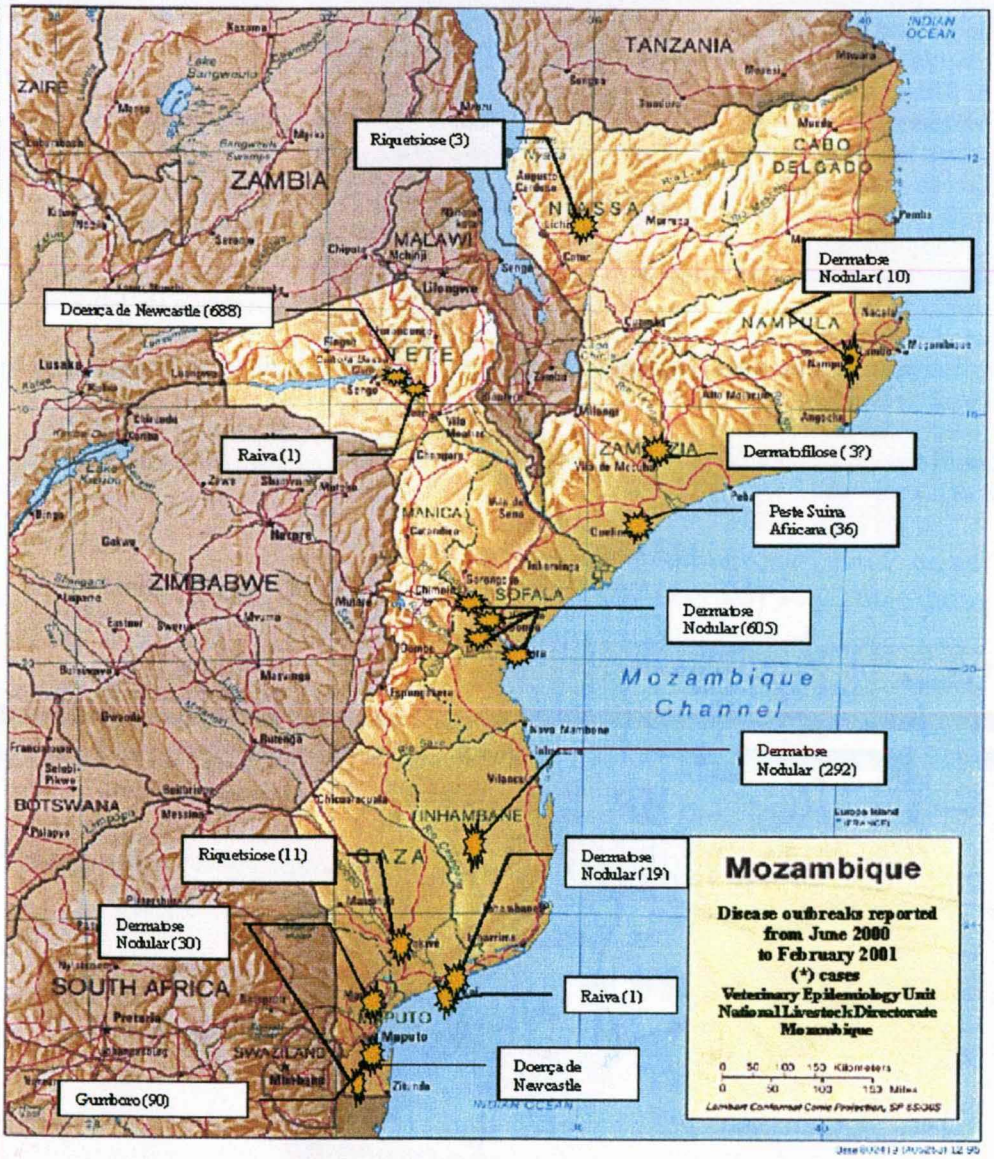
PDPSF-PROAGRI

A SITUAÇÃO EPIDEMIOLÓGICA NO PAÍS de Junho de 2000 a Fevereiro de 2001, caracterizou-se pela ocorrência de focos de **Dermatose Nodular** nas províncias de Nampula, Sofala, Gaza e Inhambane. No foco de dermatose nodular na província de Sofala registou-se uma taxa de ataque de 10% e uma taxa de fatalidade de 1.65%. Os SPP de Sofala vacinaram 5578 animais de uma população em risco de 6029 i.e 92%. Registaram-se dois focos de doença de **Newcastle** um em Tete outro em Maputo onde também foi registado um foco de doença de **Gumboro**. A **Dermatofilose** foi registada na província da Zambézia onde a doença é endémica. Dois casos de **Raiva** foram registados em Tete e em Xai-Xai. A **Riquetsiose** foi registada na província do Niassa e também em Gaza. **A Peste Suína Africana** só foi reportada na província da Zambézia em meados de Fevereiro de 2001. Desde que foi introduzido o novo formato de relatório de foco (Maio 2000) foram recebidos 30 relatórios. A qualidade dos relatórios tem vindo a melhorar, mas ainda se verifica que alguns focos de doenças de declaração obrigatória (lista anexa às instruções para preenchimento do relatório de foco) continuam a não ser reportados e os relatórios enviados correspondem apenas ao relatório inicial (detecção do foco). Os focos das doenças de declaração obrigatória têm que ser reportados no momento em que são detectados, durante o seu desenvolvimento e depois de serem extintos (relatório final). É importante que os responsáveis de sanidade organizem encontros com os veterinários e técnicos médios para divulgar e discutir o modo de preenchimento deste relatório de acordo com as instruções.



NA REGIÃO a ocorrência de **Febre Aftosa** do **tipo O** na província do Kwazulu Natal a cerca de 250 km a sul da nossa fronteira lançou uma onda de preocupação na região fazendo com que as autoridades veterinárias dos país da SADC banissem a importação de animais, carne e outros produtos daquela província Sul Africana. Tudo parece indicar que este foco se encontra debelado depois das intervenções radicais dos Serviços de Veterinária Sul Africanos. Presentemente é o **vírus SAT1** que domina as atenções dos Serviços Veterinários da Região desde a descoberta em Matsapha (Swazilândia) no mês de Novembro de 2000. A esta descoberta seguiram-se pelo menos 5 novos focos muito perto da nossa fronteira. A **Febre Aftosa (SAT2)** ressurgiu na Província do Norte na Africa do Sul em Fevereiro de 2001 depois de ter sido erradicada em Setembro de 2000 quando apareceu num projecto de criação de búfalos livres da doença naregião de Phalaborwa. A Dermatose Nodular e a Doença de Newcastle têm sido registadas em toda a região desde Julho de 2000. De interesse para o nosso país são os focos de **Peste Suina Africana** e **Teileriose** ocorridos no Malawi em Julho, Agosto e Outubro e a **Teileriose** e a **Dermatofilose** reportadas na Zâmbia e no Malawi. A ocorrência de focos de **Pleuropneumonia Contagiosa** continuaram a fustigar a Namíbia. A **Raiva** tem atingido em particular o Lesoto a Namíbia e a Zâmbia.

Luisa Patrocínio

FEBRE AFTOSA (FA)

Carlos Lopes Pereira

FA é uma doença infecto-contagiosa causada por várias estirpes de um picornavirus.

Espécies animais afectadas: Todos animais ungulados (com cascos fendidos ou com duas unhas), quer domésticos (bovinos, ovinos, caprinos, e suínos) quer selvagens : (todos os antílopes impala, girafa, porcos selvagens e búfalos. Entre estes animais, os bovinos são os mais susceptíveis á FA. Isso significa uma resistência natural menos desenvolvida nos bovinos que nos ovinos ou caprinos. Os sinais clínicos observados no gado bovino e suino são mais graves,

Pessoas: Raramente, uma pessoa (tratador), que entra em contacto com os animais doentes, pode vir a ser afectada. Na pele das pessoas afectadas podem-se desenvolver bolhas, que contem vírus da FA e facilitar desta maneira a disseminação da doença entre os animais. A infecção também pode ser adquirida atravéz do leite produzido por animais infectados.

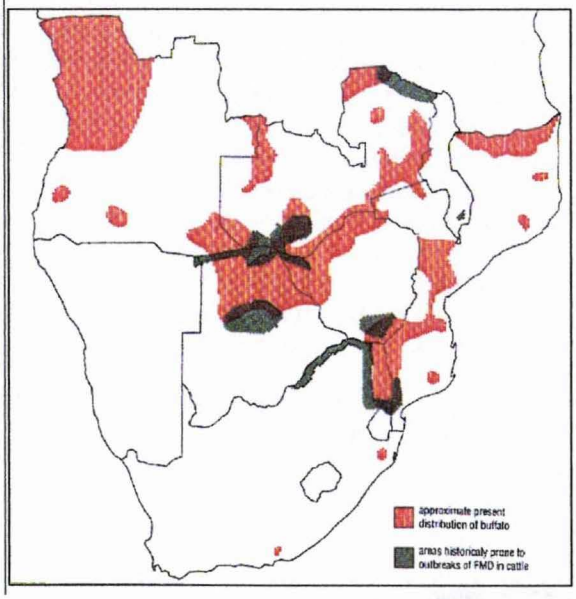
Incidência da FA: Embora podendo existir em qualquer lugar, a doença ocorre com **maior** frequência nas áreas com grande densidade dos animais selvagens.

Existem 7 estirpes diferentes do vírus da FA no mundo: O; A; C; Asia 1; SAT 1; SAT 2; SAT 3. As estirpes diferentes de vírus variam nos antígenos que possuem. Isso quer dizer, que existem diferenças na sua estrutura; as proteinas que cobrem ou envolvem o vírus não são todas iguais. No entanto, a doença causada por estirpes diferentes é sempre a mesma. As estirpes diferentes de vírus da FA podem ser ainda subdivididas em subestirpes, por exemplo: estirpe SAT 1 tem 7 subestirpes; a estirpe SAT 2 tem 3 subestirpes; estirpe SAT 3 tem 4 subestirpes. O conhecimento da estirpe de vírus é essencial para o controlo do surto da doença, usando para o efeito a vacina apropriada.

A identificação da estirpe viral pode ser efectuada rápidamente, (dentro de um dia). O conhecimento da subestirpe, bem como a estirpe de vírus pode ajudar a identificar a região da origem/disseminação do vírus .

O vírus de FA é rápidamente destruído pelo calor, secura, luz do sol e ambiente alcalino. Por causa disso a disseminação da FA através da contaminação do ambiente não é frequente. Como o frío preserva bem o vírus, o bife refrigerado pode conter vírus de FA vivo. O animal pode ser abatido contendo o vírus de FA no seu corpo. O mesmo vírus, preservado pelo frio, pode ser exportado para outros países, na carcaça. Por essa razão, **Moçambique não vai importar a carne /bife de um país infectado ou não vai autorizar movimentos e abate de animais provenientes de zonas infectadas.** O pH baixo da carne maturada é geralmente suficiente para matar o vírus de FA. No entanto, este pode sobreviver durante muito tempo nos nódulos linfáticos e médula ossea e carne refrigerada. Por isso é obrigatório desossar a carne antes da importação, para reduzir o risco da disseminação de FA. A transmissão de um animal doente para um susceptível faz-se principalmente por contacto . O vírus entra no animal através da boca ou nariz – ele é ***ingerido*** (comido) ou ***inspirado*** (inalado).

O vírus pode ser levado da comida ou do ar á garganta onde entra nos nódulos linfáticos da faringe.



A FA ocorre em quase todo o mundo, inclusivé em todo o continente Africano.

Na África Austral os búfalos selvagens são os principais reservatórios do vírus. Os focos iniciais nos animais domésticos resultam geralmente do contacto destes com os búfalos.

Distribuição aproximada do búfalo e áreas históricamente atingidas por focos de Febre Aftosa

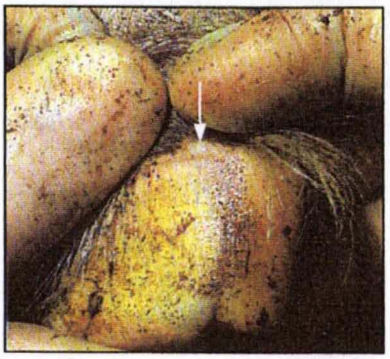


Fig. 2 .

FA Caprino : vesícula na banda coronária com 1 dia , difícil de detectar.

Fig. 3

FA bovino : lesões na língua com 3 dias.

O líquido escapado das bolhas rompidas contêm muitos milhares de vírus da FA. Na boca o vírus mistura-se com a saliva e sai do animal na saliva. Na garganta a saliva infectada mistura-se com ar inspirado pelo animal. Assim, o vírus pode libertar-se também na respiração. O vírus também pode ser encontrado na pele das patas, no úbere ou no escroto. Devido a viremia o vírus alcança todas as partes do corpo. Pode ser encontrado no leite, e até nas fezes e na urina.

A TRANSMISSÃO DIRECTA ocorre quando os animais se contactam fisicamente. A saliva infectada dos animais doentes contamina a cabeça do outro animal. O animal são lambe a saliva da sua pele e desta maneira ingere o vírus. Este tipo de contacto acontece em redor dos bebedouros, quando os animais bebem ou pastam perto um do outro ou se lambem uns aos outros.

TRANSMISSÃO VIA AEROSSOL (infecção a partir de gotículas) Ocorre quando o animal inspira (inala) ar infectado pelo vírus de FA. O animal doente espalha saliva infectada na sua respiração, em forma de gotinhas muito pequenas – aerossol. Em Moçambique, o vírus presente no ar é rápidamente destruído devido ao calor, secura e luz solar. Por isso, a transmisssão via aerossol sómente ocorre a curta distância, por exemplo no cercado. O vírus pode ficar num animal aparentemente são – isto significa, num **PORTADOR EM INCUBAÇÃO (DA DOENÇA), UM PORTADOR JÁ RECUPERADO DE DOENÇA, OU UM PORTADOR ASSINTOMÁTICO.**

TRANSMISSÃO INDIRECTA ocorre quando a saliva infectada vai contaminando o ambiente, por exemplo no bebedouro, no camião, ou na comida. Um animal são pode vir a lamber a saliva nesses lugares e infectar-se com o vírus. **TRANSMISSÃO ATRAVÉS DA CARNE** ocorre, quando na altura do abate o animal está infectado com vírus. O vírus pode depois ser transmitido atravéz do consumo de restos de carne pelos suínos que desempenham o papel de amplificadores do vírus.

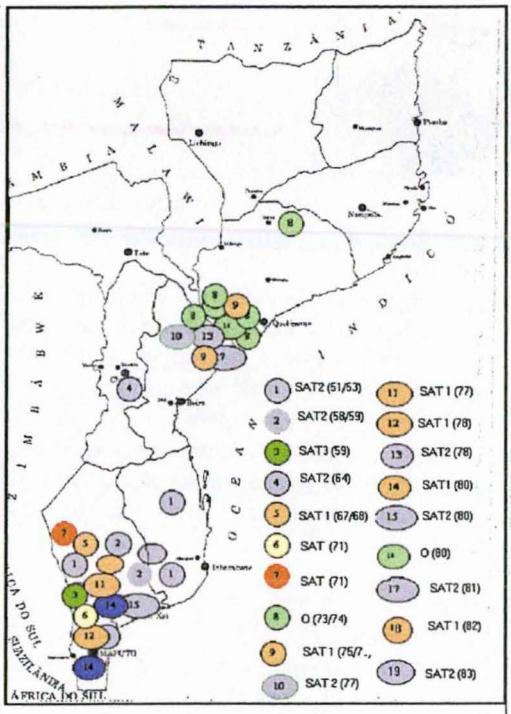
Num rebanho a FA espalha-se através do contacto corporal e aerossol. Da mesma maneira a doença pode ser transmitida aos rebanhos vizinhos. **DUMA ÁREA PARA OUTRA** a FA espalha-se pelo movimento dos animais que incubam a doença; ou pela movimentação dos animais selvagens. Vírus de FA causa lesões/bolhas dolorosas na boca e nas patas. **Os principais sinais de FA são a salivação e a claudicação.**

O controlo de FA está baseado no conhecimento de modos da sua transmissão.

As medidas principais do controlo de FA são:

CONTROLO DE MOVIMENTO DOS ANIMAIS, INCLUSIVÉ ANIMAIS SELVAGENS, E PRODUTOS DE ORIGEM ANIMAL . (Nesta fase a detecção dos animais em incubação de doença e os animais com sinais de doença fracos, é essencial) e

MANTER A RESISTÊNCIA DOS ANIMAIS SUSCEPTÍVEIS COM VACINAS (repetidas num intervalo de 15 a 60 dias e cada 6 meses subsequentemente, (vacinas á base de saponina).



Em Moçambique ocorrem as estirpes SAT 1, SAT 2 e SAT 3.(SAT significa Southern African Territories). Na província da Zambézia já ocorreu o tipo O na década de 70 e 80. A doença ocorre em Moçambique e em todos os países á sua volta. Em Moçambique a doença ocorre com regularidade, pricipalmente no sul do país mas entre 1984 e 2000 não se registaram focos

Fig. 4 FA bovino: lesão antiga num animal recuperado →

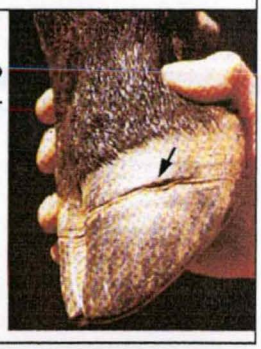


Fig. 5 FA, bovino: lesões na boca com 4 dias. ←

Fig. 6. FA, bovino: lesão no espaço interdigital com 7 dias. →

ENCEFALOPATIA ESPONGIFORME BOVINA (BSE)

Adolfo Mavale

A Encefalopatia Espongiforme Bovina (BSE) é uma doença degenerativa crónica fatal que afecta o sistema nervoso de bovinos adultos de ambos os sexos. A BSE faz parte da família das encefalopatias espongiformes transmissiveis incluindo a Creutzfeldt-Jakob Disease (CJD) que afecta o homem.

A BSE foi diagnosticada pela primeira vez no Reino Unido em 1986 e é somente neste país onde uma epidemia de grandes proporções ocorreu. Esta doença também foi confirmada em outros países como a Bélgica (10 casos), Dinamarca (1), Irlanda (24.112), Itália (2), Suíça (640), França (290), Alemanha (6), Luxemburgo, (10), Holanda (20), Portugal (786), Canadá (1), Oman (2) e Ilhas Malvinas (1). Até aqui, não há registo desta doença em África, mas constitui uma séria ameaça a este continente devido ao comércio com a Europa. A BSE tem um substancial impacto económico na indústria pecuária dos país afectados e particularmente do Reino Unido. Só neste país foram afectados cerca de 175.000 bovinos entre 1986 e 1999. Em Janeiro de 1993 ocorreram cerca de 1000 novos casos. O impacto económico resulta não só de perdas de animais como também de restrições no comércio interno e externo dos países afectados.

O agente causal da BSE ainda não está completamente caracterizado. Existem três teorias sobre a natureza do agente: (1) **virus** com características não usuais, (2) **virino** - um pequeno ácido nucleico revestido de uma proteína derivada do hospedeiro e (3) **prião** - uma proteína modificada para uma forma parcialmente resistente a enzimas, sendo esta a mais largamente aceite. Contudo, é um dado adquirido que o agente causal da BSE é extremamente resistente ao calor e aos processos de esterilização normais.

Sobre a origem da BSE apresentam-se as seguintes hipóteses: (1) alimentação do gado com rações preparadas usando tecidos de ovelhas infectadas com "scrapie" ou (2) a BSE já existia no Reino Unido antes de 1986 em níveis não detectáveis. O uso de produtos de origem animal (carne e farinha de ossos) nas rações para bovinos era comum havia alguns anos. As fonte de infecção são rações preparadas com base em tecidos de animais e animais infectados com BSE. A transmissão tem lugar quando há ingestão de rações contaminadas. Não há evidência de transmissão horizontal. Alguns estudos sugerem transmissão vertical. Em animais vivos o único meio de diagnóstico desta doença são os sinais clínicos. O período de incubação varia de 2 a 8 anos e a doença clínica dura de 2 semanas a 6 meses. Os principais sinais clínicos são (1) **alterações no temperamento** - nervosismo ou agressão, postura anormal, incoordenação e dificuldades para se levantar, perda de condição corporal apesar de bom apetite, morte e (2) **alterações de comportamento a estímulos físicos** – luz, sons e tacto. O exame microscópico revela tecido cerebral esponjoso.

Não há tratamento nem vacina, pois o agente causal ainda não foi completamente caracterizado. Os bovinos afectados morrem. A prevenção da BSE inclui restrições no comércio com animais vivos, carne e rações cuja fonte de proteína são tecidos de animais susceptíveis oriundos de países afectados.

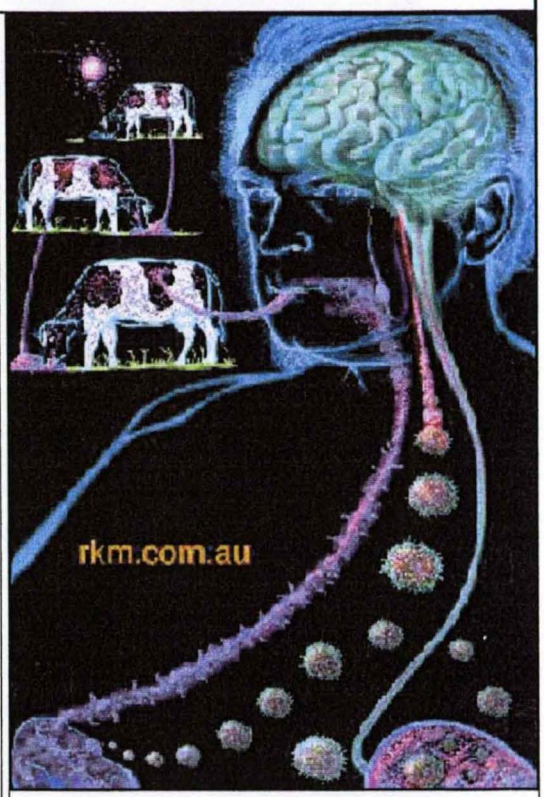


Fig. 6 Priões a serem dessiminados de bovinos para humanos. (Copyright Russell Kightley Media)

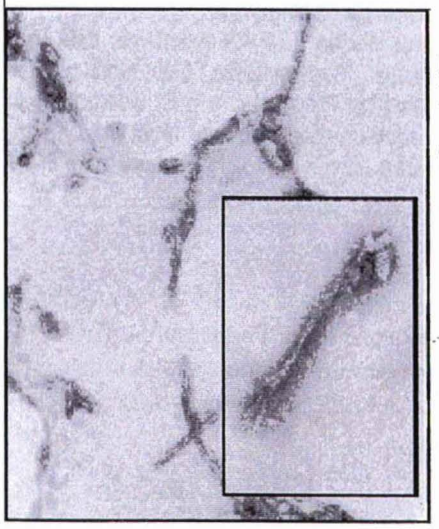


Fig.1
Prião (BSE)

(CSIRO-AAHL)

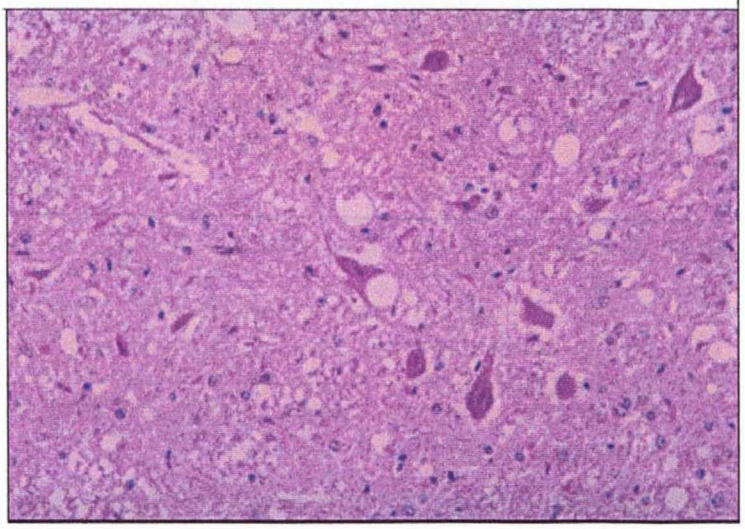


Fig. 2
Medula de uma vaca afectada com BSE

National Institute of Animal Health (Japan)

DIRECÇÃO NACIONAL DE PECUÁRIA

Morreu o Doutor Charles Merieux

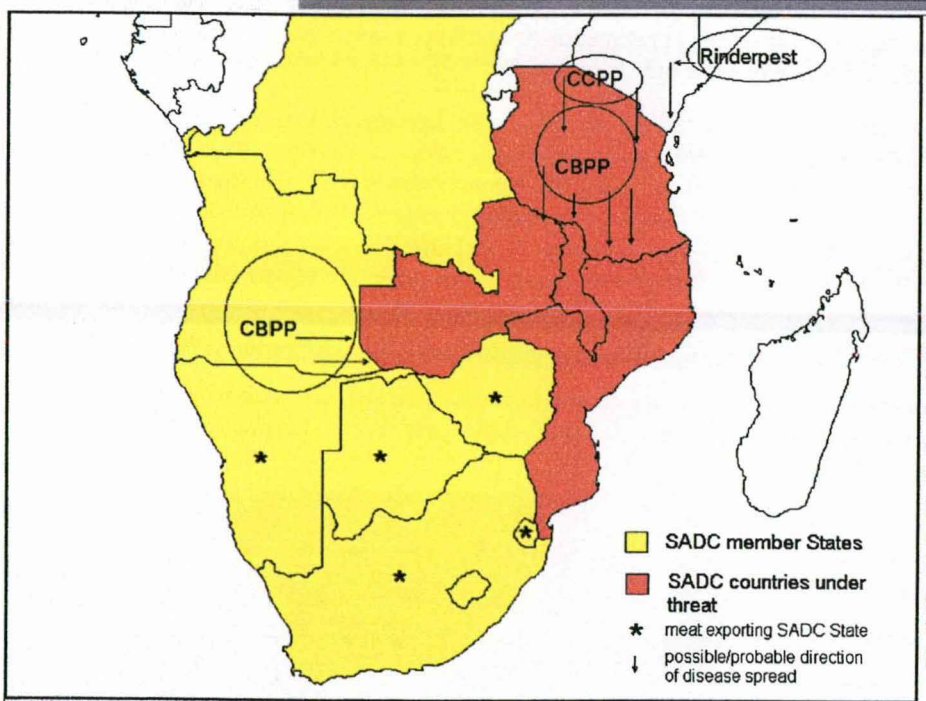
Endereço:
Ministério da Agricultura e
Desenvolvimento Rural
Praça dos Heróis Moçambicanos
Caixa Postal 1406
Maputo

Nós estamos na Internet
http://www.teledata.mz/uevdinap/

O Doutor Charles Merieux morreu a 19 de Jan 2001. Ele tinha 94 anos e dedicou a sua vida ao combate das doenças infecto contagiosas. O Dr. Merieux começou a investigar em 1937 num labratorio modesto pertencente a seu pai um ex-discípulo de Louis Pasteur e Emile Roux. Ele desenvolveu a "virulogia industrial" para a produção de vacinas primeiro nos animais depois em cultura de células e mais tarde usando técnicas de engenharia molecular. Ele continuou a realização dos seus sonhos, até ao último momento da sua vida. O Dr. Merieux que em 9 meses vacinou 90 milhões de brazileiros contra meningite parando desta forma a epidemia de 1974, estava consciente que a batalha contra os agentes infecciosos nunca pode ser vencida, que novos agentes patogénicos emergem na maior parte dos casos em países tropicais e que era indispensável associar a medicina humana e veterinária. Ele criou vários laboratórios de investigação inclusivé um de alta segurança (BSL-4). Embora muito cansado, ele pediu para ser levado para Gerland onde está localizado o BSL-4, dois dias antes da sua morte, para visitar os laboratórios que ele tinha criado graças ao seu entusiasmo e tenacidade, para ver os mesmos a funcionar. Ele queria tornar estes laboratórios disponíveis para os países mais desfavorecidos, particularmente os países africanos. Como cientista, humanista e empresário, Charles Merieux foi um dos maiores homens deste século. Ele é um modelo para todos aqueles que trabalham para aplicar a ciência na melhoria da saúde do Homem.

EMPRES
EMERGENCY PREVENTION SYSTEM

TADinfo em Moçambique



Entrou na fase de implementação o TCP " Promotion of Transboundary Disease Early Warning Systems in the SADC Region TCP/ RAF/8932 (A). Este projecto tem como objectivo principal melhorar o sistema de informação em 4 países da região e melhorar o sistema de aviso prévio a nivel regional de forma a promover a colaboração entre os países no controlo e erradicação de doenças em particular as doenças expansivas. Este projecto terá também como objectivo treinar os epidemiologistas e veterinários em geral em vigilância epidemiológica de doenças expansivas e na preparação de planos de contingência.
Uma missão da FAO constituida pela Dra. Rachel Madekurozwa Coordenador Regional do Programa e o Dr.George Nipah vesitaram recentemente Maputo e trabalharam com a UEV-DINAP nesta matéria.

PROGRAMA DA UEV ATÉ DEZEMBRO DE 2001

O PAAO da UEV para 2001 tem como actividades principais (i) o treino dos veterinários dos SPP em Epidemiologia em particular na área de Sistemas de Informação Geográfica (GIS) e Epidemiologia Participativa (ii) os estudos de impacto de Febre Aftosa, Doença de Newcastle , Brucelose nas zonas rurais, doenças transmitidas por carraças em Gaza e Inhambane, Febre do Vale do Rift na Zambézia e a consolidação do sistema de informação epidemiológica (TADinfo) em todo o país.

Project Outline

SADC Livestock Disease Information System

1. Introduction

SADC, the Southern Africa Development Community, is a .....

The SADC Livestock Disease Information System was initiated in 1997 as a result of a decision taken by the SADC Livestock Sector Technical Committee. The system is based on the submission of outputs from national veterinary surveillance systems to a common database hosted in Windhoek, Namibia, by the Namibian Directorate of Veterinary Services.

.....

.....

2. Aims of the Project

The overall objectives of the project is to

- increase livestock output and tradeability within SADC through improving surveillance at the national level,
- providing a basis for decision-making in disease management, and
- sharing of accurate data between SADC countries so as to enhance risk analysis and trade.

- Consolidate and strengthen capacity for the regional unit to provide early warning disease information on a regular basis to policy and decision makers in the region

- strengten technical capacity of national units to collect, process analyse and interpret inofrmation for assessing the disease situation.

3. Project Outputs

The project will rely to a large extent on training at the national level to improve surveillance and decision making within countries. Expected outputs are:

- Field veterinarians trained in livestock disease surveillance
- Field veterinarians trained in recognition of key diseases
- Public awareness campaigns initiated to increase farmer co-operation
- Self-monitoring mechanisms (standardised throughout SADC) in place as a quality assurance system for national surveillance
- Enhanced capacity at regional level for data analysis and disease impact studies
- An effective disease early warning system
- Evidence based decision making at both national and regional levels

4. Summary of Project Activities

Training activities - series of national workshops (surveillance/recognition/contingency planning) .....

- develop technical handbooks as a guide for staff in both regional and national units
- training workshops
- backstopping missions
- monthly (regular) bulletins by both national and regional units (peridicity to be specified)
- development of regional expertise to provide support within region

5. Project Logframe

Project Logic	Project Environment
Development Objective Increase livestock output and tradeability within SADC, thereby improving farmers' livelihoods & national economies	Risks - to what risks is the project subject?
Immediate Objective Improvement of surveillance at the national level, providing a basis for decision-making in disease management, and sharing of accurate data between SADC countries so as to enhance risk analysis and trade	
Outputs • Field veterinarians trained in livestock disease surveillance • Field veterinarians trained in recognition of key diseases • Public awareness campaigns initiated to increase farmer co-operation • Self-monitoring mechanisms (standardised throughout SADC) in place as a quality assurance system for national surveillance • Enhanced capacity at regional level for data analysis and disease impact studies	Prerequisites (activities by other agencies or Ministries to ensure successful implementation)

Activities • 14 National workshops on surveillance • 14 National workshops on disease recognition • National media campaigns • Implementation of surveillance quality assurance system • Consultancy to design surveillance quality control •	
Inputs Goods/services required from government/donors (+rough outline of budget)	

Operational framework

Clarify overall mandate of the unit. – explain role of national units in supporting regional unit.

Unit to work within a legal framework – all countries to sign a memorandum of understanding.

Work in conjunction with the sub-committee web siite
- possible hosts – SADC
- FAO
- Ministry of Agriculture Namibia
- via the web – countries require e-mail and internet facilities (regional)

Meetings: early warning strategies, methods, backstopping requirements and operational issues.

Possible funding: contributions from member states as stated in a memorandum of understanding to cover operational costs.

Activities
- develop technical handbooks as a guide for staff in both regional and national units
- training
- backstopping missions
- monthly (regular) bulletins by both national and regional units (peridicity to be specified)
- develop regional expertise to provide support within region

Project Proposals
- Training in surveillance – continuous
- Structure of national veterinary services for effective surveillance
- Support to national veterinary services – resources both national and from donors

Countries:	**SADC Countries**
Project Title:	**Promotion of Transboundary Disease Early Warning Systems in the SADC Region**
Project Number:	**TCP/RAF/8932 (A)**
Starting Date:	**February 2000**
Completion Date:	**January 2001**
Government Ministry responsible for project execution:	**SADC Livestock Sector, Gaborone, Botswana**
FAO Contribution:	**US$ 292 000**

Signed: .....

(on behalf of SADC)

Date of Signature: .....

Signed: .....

Jacques Diouf
Director-General
(on behalf of FAO)

Date of signature: .....

I. BACKGROUND AND JUSTIFICATION

SADC is a politico-economic grouping of countries in southern Africa with a well-developed administrative and consultative structure. The organization promotes co-operation in virtually all economic fronts, ranging from transport and communications to agriculture and fisheries.

Development of the livestock sector within SADC is the domain of the Livestock Sector Technical Committee, which meets annually in various SADC countries on a rotational basis. and consists of the heads of veterinary services and livestock development/production services of the member countries. This Technical Committee has established a number of expert subcommittees to advise it and to carry out certain tasks in the region. One of these is the Subcommittee on Animal and Veterinary Public Health (chaired by Namibia). One of the main terms of reference of this subcommittee is the establishment of animal disease information system within the region.

As the SADC region is home to between 40 to 50 million heads of cattle alone, and that a number of SADC countries are exporters of meat and livestock, livestock are a key economic mainstay in the southern African region. This all-important sector is now coming under increased pressure from transboundary livestock diseases:

Contagious bovine pleuropneumonia (CBPP), which was confined to a relatively small endemic area within southern Angola and northern Namibia, has, in recent years made incursions into Tanzania (where it has become endemic) and into Botswana and Zambia (where it has been controlled and eliminated). The threat of spread of CBPP, particularly into Zambia and Malawi, continues to grow.

Rinderpest, which has entered Tanzania, and appears to have been eliminated. However, the situation in northwestern Kenya/southern Somalia is not clarified and remains a source of worry to SADC countries.

Rift Valley Fever (RVF), which recently flared up in Tanzania and Zimbabwe.

Lumpy Skin Disease (LSD), which flared up in an epidemic in all member countries in 1994/95, and is once again threatening.

Foot and mouth disease (FMD), which is a constant threat, particularly in Namibia, Botswana, Zambia and Zimbabwe. The recent incursion of FMD into Malawi gave cause for much concern. The disease remains uncontrolled in Tanzania.

Contagious caprine pleuropneumonia (CCPP), which was recently confirmed in Tanzania (the first time in an SADC country) and which poses a food security threat as a result of its impact on small ruminants.

Newcastle Disease, which has become widespread in rural poultry production and is a food security problem.

Until now, the SADC response to disease has been reactive, rather than a proactive response based on a sound early warning system. What is needed now is an approach, starting at national level, and co-ordinated across SADC, that is founded firmly on the principles of disease surveillance, early detection and transparent reporting. Technically, this would involve the collection of disease surveillance/early warning data on the ground, and feeding it into disease data analysis software at national level (FAO has developed a programme called Transboundary Animal Disease information system - TADinfo - for this purpose). The national level data, after being analysed at country level using National TADinfo or a similar product,

would be transferred in abbreviated form to a software package at regional level (FAO is currently developing Regional TADinfo for this purpose) which could make the information available to all SADC countries electronically over the Internet/via email, and also through printed reports.

The software under development by FAO would probably require some adaptations to suit it to SADC needs. SADC already has a very rudimentary data collection and dissemination system which is partially computer based, partially paper based, and is not Y2K compliant.

While most SADC countries have surveillance systems in place, more needs to be done in terms of improved management of these systems and introduction of new surveillance techniques (e.g. participatory rural appraisal) and effective management of information generated by these systems. In addition, electronic data management needs to be improved and electronic connections between SADC veterinary epidemiology units improved where possible.

The intervention of the SADC Livestock Sector in terms of strengthening national surveillance capacities and setting up a regional early warning network thus comes at a most opportune time and should be supported. Indeed, the Executive Secretary of SADC made an appeal in 1997 for donors and international organizations to assist with the combating of CBPP, one of the most serious current transboundary disease threats in the entire subregion. The response of the EU was to come forward with a proposal for a project that would enhance regional collaboration on disease control in the SADC region.

It is expected that initiatives begun under this project would be taken up and sustained under the proposed EU-funded Southern African Disease Control Project. The proposed total budget for this project is Euro 12 million. The focus will be the improvement of regional co-ordination in livestock health, with target areas for collaboration between countries being the two areas of policy/strategy formulation and the control of animal diseases (including information exchange). The inception date has not been finalised, but could be anytime within the next 12 months.

The subcommittee on Animal and Veterinary Public Health (now renamed the Epidemiology and Informatics subcommittee), in collaboration with the Livestock Sector Co-ordinator in Gaborone, has already set up a prototype paper-based early warning system in SADC. The threat posed by the Transboundary Animal Diseases described above has made the need for transforming this into a working network for disease information exchange/early warning an urgent objective.

II. OBJECTIVES OF THE ASSISTANCE

The objectives of the requested assistance are:

- The improvement of in-country surveillance systems in SADC countries in order to improve livestock disease management and provide better inputs to regional early warning;
- Strengthening and improvement of the SADC Livestock Disease Early Warning system with a view to providing more prompt and accurate disease alerts and to improve regional collaboration in livestock disease management and eradication.

III. PROJECT OUTPUTS

The project results will be:

1. Effective direction of surveillance activities and the planning of appropriate control measures in response to emergency disease situations through improved surveillance management. Training courses will be given for this purpose.

2. Enhanced capacity of the SADC regional animal disease reporting system to monitor livestock diseases and early warning to member countries through better information management. This will be achieved through training and, where necessary, the implementation of specially customised TADinfo software.

3. Improved co-ordination and collaboration between SADC member States with respect to the reporting of transboundary livestock diseases – through increased awareness and improved electronic communications and the establishment of a web-based data storage and retrieval system at two or more mirror sites in the region. This would be based on the Regional TADinfo template (HTML-Java based interface linked to a relational database) already developed in FAO. On a pilot basis, four countries (Tanzania, Zambia, Malawi and Mozambique) are chosen for this activity, whereby National TADinfo would be installed in their epidemiology units and linked to the Regional TADinfo sites (see flow diagram in appendix).

4. National epidemiologists and livestock disease managers from ten countries trained in epidemic disease surveillance and contingency planning.

IV. WORK PLAN

The program will be implemented in close collaboration with SAFR Animal Production and Health Officer (Harare), the SADC Livestock Sector Co-ordinator (Gaborone) and the SADC Animal and Veterinary Public Health Co-ordinator (Windhoek). A project Coordinator will be appointed who will operate from Harare; in addition two TCDC consultancies will assist at various times in the project with needs assessment and training.

The following is an approximate indication of the timing of inputs (see appendix with tentative work programme for more details):

Month 1
Appointment of Regional Coordinator. First technical backstopping mission from HQ (one week) to SAFR for briefing, on the program and meeting with the Project Coordinator, SADC Livestock Sector Coordinator and consultant team.

Month 2
Regional missions by Co-ordinator and TCDC consultant to assess needs in the four "pilot countries" of Malawi, Mozambique, Tanzania and Zambia.

Month 3
Regional training workshop for SADC epidemiologists & contract for educational CD-ROM on transboundary animal diseases in eastern and southern Africa
Month 4 –5

Procurement of equipment as necessary; appointment of TCDC expert to travel in region for workshop follow-up, assess technical needs, and install National TADinfo.

Month 5
Appointment of consultant for software development - regional information storage and analysis package.

Month 7-10
Software design and testing at FAO HQ.

Month 11
Software installation and testing in Windhoek, Gaborone and Harare.

Months 11-12
Regional mission from SAFR and TCDC/retired expert to assess progress. Wrap-up backstopping, mission from HQ and closing workshop for epidemiologists.

Due to the complex technical nature of the project - with installation of networked software - considerable technical input from FAO is needed.

V. CAPACITY BUILDING

National veterinary epidemiologists of SADC will be trained specifically in the structuring and implementation of surveillance systems for disease early warning; they will also be trained in the various components of early reaction, and where necessary will receive software support. Tanzania and Malawi have already begun implementing surveillance systems based on early versions of TADinfo; upgrading of these with extra training will help create TCDC capacity in the region.

VI. INPUTS TO BE PROVIDED BY FAO

Personnel Services (up to $125 045) (see Terms of Reference in annex)

Regional coordinator
To co-ordinate project activities and do some regional needs assessments (based in Harare).
9 p/m at $2000/month + 30 days DSA @ 150/day + two round-trip regional flights + travel to 2 workshops (2x800 + 2x600) = 25 300

A TCDC surveillance expert
To assist the Co-ordinator with assessing the needs in terms of surveillance and, where necessary to assist in the implementation of surveillance systems in pilot countries.
3 missions, total 2 p/m @ $150/day DSA & 3 reimbursements @ 300 each + 2 round trip regional flights + travel to 2 workshops + travel from home station = $20 000

Technical backstopping from FAO HQ
Plus HQ-based assistance with planning of workshop, compiling training materials and software design
2 ATS missions (one 12 days, one 7days)
2 STS missions (2 weeks each)

***International consultant** for software development/adaptation*
To upgrade and, if necessary, partially re-develop the system presently in use in Windhoek, and to install similar "mirror" systems in Harare and Gaborone, and make any other changes or adaptations deemed necessary to other in-country software. (Installation of web-based software at mirror sites ensures ease of access and also provides a ready back-up service). This software package will be compatible with the FAO/EMPRES-developed TADinfo software for regional disease data collation and analysis (subject to findings of expert assessment). 2.5 pm @ $16,000 pm = 40,000

Official Travel (up to $20 000)
By FAO's staff related to the project within the region. Two trips to SADC region @ $4500 each + one trip to, and other travel within, the region @ 11 000 = 20 000

Contracts (up to $25 000) (see Terms of Reference in annex)

Author's contract for writing detailed software user manuals and programme documentation: $10 000

Preparation of educational CD-ROM on transboundary animal diseases in southern Africa (to aid early recognition, diagnosis and thus early warning): $ 15 000

General Operating Expenses (GOE) (up to $10 955)

To cover the cost of various activities associated with implementation of the project in the various countries, possible field visits, the use of telephone, internet/email connections, taxes, photocopiers, etc.

Materials and Supplies (up to $2 000)

To cover the costs of supplies needed, particularly for computer systems, etc,
paper, toner, diskettes. (See appendix)

Equipment (up to $30,000)

To cover the costs of computer hardware and software needed by individual countries. (See annex)

Direct Operating Cost (DOC) (up to $20 000)

Training (up to $59,000)

To cover the cost of training workshops for epidemiologists and disease managers (see appendix). The workshop should be held in Pretoria, South Africa, due to the easy availability of computer training facilities there (See annex 2 for full breakdown of budget):

First workshop $25 400 (epidemiologists only)
Second workshop $33 600 (epidemiologists and disease managers).

VII. REPORTING

The Regional co-ordinator will prepare two reports: one at the beginning of his / her mission to summarize the needs recently in existence; and one at the end to indicate progress made and any further needs that might exist. Such reports will be submitted to the SADC Livestock Sector Coordinator, SAFR and FAO HQ EMPRES-Livestock). Reports will be technically cleared by EMPRES Livestock on the recommendation of the first two.

Technical reports will be prepared by the TCDC consultants to cover technical issues or specific problem findings - these will be the responsibility of the regional co-ordination within SAFR, the SADC Livestock Sector Co-ordinator and the Animal and Veterinary Public Health subcommittee coordinator.

At the end of the project, the Coordinator in collaboration with SAFR and SADC will prepare a draft terminal report and terminal statement in accordance with the TCP format. The terminal statement will be finalised by AGAH for transmission to the SADC Livestock Sector Technical Committee.

VIII. GOVERNMENT CONTRIBUTION AND SUPPORTING ARRANGEMENTS

For the successful implementation of this project, the Governments (of participating SADC countries) will do the following:

- Release their national epidemiologists to the training workshop, and any other activities organised under the TCP.
- Submit trial data to SADC for testing, in the newly-constituted data base software.
- Provide venues for meetings and training courses where necessary in the respective countries.
- Maintain national surveillance systems and information flows to SADC.
- Commit existing computer equipment in national epidemiology units to the project and allow installation and maintenance of email communications.

There is an existing arrangement in SADC whereby each country commits an epidemiologist to (a) report to the existing SADC database on a monthly basis (b) liaise with SADC secretariat (Gaborone) and the SADC regional disease reporting system (Windhoek) and (c) attend the regular meetings of the SADC epidemiologists' subcommittee (at the country's own expense). These activities are already in existence under the SADC Treaty of Membership, and funded by member countries with their own resources. In addition, the SADC regional animal disease database is run by the Namibian Directorate of Veterinary Services, using its internal resources; and the SADC Livestock Sector Co-ordinator in Gaborone is funded by the Government of Botswana. All of these factors combined will ensure the sustainability of any actions initiated under this project. SADC as an organisation is based on the concept of self-help in order to ensure that development initiatives in the region do not lose momentum.

In addition, in order to ensure the sustainability of the TCP follow-up action, the governments will commit themselves to allocating part of the livestock revenues to the Livestock Development Department, specifically earmarked for disease surveillance and disease and disease emergency preparedness. The above commitment of the Government to allocate extra resources to the Department is a prerequisite to project activities implementation in each country.

PROJECT BUDGET COVERING FAO INPUTS
(in U.S. Dollars)

Countries:	**SADC Countries**	
Project Title:	**Promotion of Transboundary Disease Early Warning Systems in the SADC Region**	
Project Number:	**TCP/RAF/8932 (A)**	

1100	International Consultant	40 000	
1200	FAO Advisory Technical Services	16 425	
1700	National Consultant	25 300	
1800	TCDC/ECDC experts	20 000	
1900	Supervisory Technical Services	23 320	
	1910 Standard Supervisory Technical Services (6 900)		
	1920 Supervisory Functions of LTU (1 170)		
	1930 Field Missions (14 750)		
	1950 Evaluation (500)		
	Personnel		**125 045**
2000	Official Travel		20 000
3000	Contracts		25 000
4000	General Operating Expenses		10 955
5000	Materials and Supplies		2 000
6000	Equipment		30 000
7000	Direct Operating Expenses		20 000
8000	Training		59 000
	TOTAL		**292 000**

ANNEX 1.1

Terms of Reference

REGIONAL COORDINATOR

Duties:

Under the operational supervision of the Chief, RAFR, and the technical supervision of the Chief, AGAH, and in close collaboration with national staff, the expert will be responsible for co-ordinating the activities of the project. In particular, he/she will:

- review the epidemiology of the transboundary diseases currently infecting the SADC region and provide a regular up-date to FAO, SADC secretariat and the participating countries;
- undertake a mission to review the status and needs of national epidemiology units in two of the four countries identified by the SADC Livestock Sector Co-ordinator as "pilot countries";
- review proposals by the national institutions and hence draw up a detailed work plan for the different components of the project;
- organise the training workshops and co-ordinate equipment procurement;
- writing of project terminal statement;
- perform any other related duties.

Qualifications: A veterinary degree with postgraduate qualification (MSc or higher) in epidemiology or a related field plus a minimum of five years' experience in applying disease surveillance and control strategies in Africa. He/she should have capacity to relate with national authorities and development agencies. Prior experience with EMPRES priority diseases (Rinderpest, Foot-and-mouth disease or CBPP) would be desirable.

Duration of assignment: 5 + 4 months (see attached work programme)

Duty Station: Harare, Zimbabwe

ANNEX 1.2

Terms of Reference

TCDC CONSULTANT

Duties:

Under the operational supervision of the Chief, RAFR, and the technical supervision of the Chief, AGAH, and in close collaboration with the project Regional Co-ordinator and national staff, the consultant will:

- review the national surveillance capabilities of countries involved in the project, including the implementation of national surveillance programmes (telephonically as far as possible);
- gain information on the use of computer hardware and software in the above-mentioned units, and acquire samples of all data formats used;
- undertake a mission to review the structure and functioning of two of the four pilot national veterinary epidemiology units, including the use of electronic communication in order to assist the project co-ordinator and speed up implementation;
- make recommendations to the Co-ordinator, SADC and FAO with regard to the above;
- where necessary, undertake travel to involved SADC member states in execution of the above;
- assist with the preparation and presentation of the training workshops;
- install National TADinfo in four pilot countries;
- assist the programmer by providing details of software needs for the adaptation of Regional TADinfo;
- final assessment of project progress in terms of regional disease communication for presentation at final workshop.

Qualifications: A graduate veterinary degree with a minimum of five years' experience in disease surveillance and the use of computers in veterinary epidemiology are basic requirements; an MSc (or higher) in epidemiology or a related field is an added recommendation. Prior experience with EMPRES priority diseases is desirable. The consultant should be resident in a SADC member state.

Duration of assignment: An initial assignment of two weeks (to assist co-ordinator with needs assessment), followed by another month to assist with initial workshop, install National TADinfo in pilot countries and report on details of regional software needs; and finally wrap-up assessment mission of progress made (one month) is envisaged. See work programme. The first two missions must be undertaken by the same individual; it is preferable, but not essential, that all the missions be undertaken by the same individual. Total = 2.5 person-months. (First mission 2 weeks; 2nd mission 1 month; 3rd mission 2 weeks).

Duty station: the consultant would be based in Harare, Zimbabwe.

ANNEX 1.3

Terms of Reference

INTERNATIONAL CONSULTANT (TADInfo compatible SOFTWARE DEVELOPMENT)

Duties:

Under the operational supervision of the Chief, RAFR, and the technical supervision of the Chief, AGAH, and in close collaboration with the project Regional Co-ordinator and national staff, the consultant will:

- review the regional software needs based on feedback from the TCDC consultant;
- write and prepare for installation such software as is deemed necessary for the successful capture and processing of livestock disease data from the SADC region, which must be compatible with FAO's TADinfo software and able to import data from other software packages;
- the software to be written in accordance with FAO standards established for TADinfo, namely a Java interface, SQL business logic and compatibility with standard database engines such as SQL Server, Oracle and Microsoft Jet;
- make recommendations to the Co-ordinator, SADC and FAO with regard to future hardware and software needs in the region;
- ensure that a user manual is compiled for use with the above-mentioned software.

Qualifications: An MSc or PhD in computer science or a related field with working knowledge of FAO's TADinfo system, an excellent knowledge of relational databases, SQL programming, Java/Jpython programming, HTML interface development and various computer operating systems including Windows 95, Windows NT, Unix and Linux.

Duration of assignment: 2.5 months

Duty station: in keeping with accepted practice, the consultant would remain at his/her home base, but would visit key locations (Windhoek and/or Harare and/or Gaborone) as appropriate.

ANNEX 1.4

Terms of Reference of Backstopping Missions

FAO HEADQUARTERS (EMPRES) STAFF
EPIDEMIOLOGIST

1. Play a key role in planning the national epidemiologists' workshop.
2. Attendance of the above-mentioned workshop and make presentation on surveillance and TADinfo software.
3. Provide basic training for Co-ordinator and TCDC consultant and national epidemiologists on use of TADinfo.
4. Liaison with Regional co-ordinator, software programmer and epidemiologists in Windhoek, Harare and Gaborone on development and implementation of computer software to ensure full compatibility with EMPRES-TADinfo system.
5. Upgrading of TADinfo systems in Tanzania and Malawi and appropriate training to epidemiology unit staff.
6. Preparation of National TADinfo software for installation in pilot countries.
7. Assist with planning and presentation at final workshop.

First mission: (3 weeks) First workshop; installation of TADinfo upgrade in Tanzania and Malawi

Second mission: (1 week) Final workshop.

STS MISSIONS BY HEADQUARTERS APO's

Two Headquarters Assistant Professional Officers will each travel to one pilot country (Zambia and Mozambique) to install TADinfo software and give training in its use; they will also give basic training in the Windows Operating System and the use of email. Each mission will last two weeks.

FAO REGIONAL STAFF
ANIMAL HEALTH AND PRODUCTION OFFICER

1. Assess progress of project implementation, and provide assistance as necessary.

ANNEX 1.5

Terms of Reference

Author's contract - User's manual for Regional TADinfo software

A user's manual for Regional TADinfo must be compiled to cover the following areas:

1. Purpose and structure of the software.
2. Requirements (hardware, operating system).
3. Linkage with National TADinfo.
4. Installation and configuration.
5. Regular user operation of Regional TADinfo.
6. Outputs.
7. Other items as necessary.

The author shall be a computer scientist or software developer who is thoroughly familiar with all aspects of TADinfo development.

Multimedia educational CD-ROM

The CD-ROM on recognition of transboundary animal diseases for southern Africa will provide scientific material for practising veterinarians covering the following aspects of FMD, CBPP, Rinderpest, ASF, NCD:

1. Definition of the disease
2. Causative organism & its basic characteristics
3. Epidemiology of the disease: predisposing factors, transmission, spread
4. Clinical signs and post-mortem lesions with colour photographs
5. Information on relevant laboratory samples, packaging and transport
6. Control and prevention

ANNEX 2

WORKSHOPS

Two training workshops are envisaged under this project:

The first workshop is for national epidemiologists and will concentrate on matters related to surveillance and the collection and analysis of survey data. Subjects dealt with will be surveillance methods, surveillance management, information management, and a brief introduction to EMPRES TADinfo software. Attendance is strictly for veterinary epidemiologists running national epidemiology units in participating countries (one from each country).

Budget: first workshop:
Air travel for 10x epidemiologists + 1 Co-ord + 1 TCDC consultant = 12x 800 = 9600
DSA for 12 @ USD 100/day for 6 days = 7200
Rental of meeting room @ 120/day for 5 days = 600
Rental of computer equipment/LCD projector @ 10 computers x $100x5days + LCD@$200x5days = 6000
Contingencies 2000
Total = 25400

The second workshop, held towards the end of the project, will have two aims: first, a review of progress with in-country surveillance and regional disease reporting since the beginning of the project, and second, an introduction to contingency planning/early reaction as part of a continuum with surveillance. The attendance of this workshop should allow for two participants from each country: the epidemiologist who attended the first workshop, and the veterinarian running veterinary field services in each participating country. The object of this is to strengthen the links between data collection/reporting and livestock disease management.

Budget: second workshop:
Air travel for 10x epidemiologists + 10x contingency planners + 1x co-ord + 1x TCDC = 22x800 = 17600
DSA for 22 @ USD 100/day for 6 days = 13200
Rental of meeting room @ 100/day for 6 days = 600
Rental of 1 computer + 1 LCD projector for 5 days = 1500
Contingencies 700
Total = 33600

ANNEX 3

SPECIFICATIONS FOR COMPUTER EQUIPMENT & DEPLOYMENT

Five personal computers with the following specifications:

Hardware: computer

HDD	5gB min
CPU	400mHz min
RAM	64 kB
Video RAM	2mB min
Monitor	SVGA 17"
CD-ROM	12x min
FDD	1.44 mB
Tape Drive	250mB min
Internal modem	

Printer

Monochrome laser
2mB RAM min
600dpi
Full raster capabilities
8 ppm min

Software

Windows 95 or above operating system
MS Office Professional '97 (incl. MS Access)
ArcView 3.0 or above
Backup software for tape drive
WinZip latest version

Estimated prices:
Computers $ 1 700 each
Printers $ 700 each
MS Windows $200/installation
MS Office professional (incl MS Access) $ 400/installation
ArcView 3.0/3.1 $3 000 /installation

These computers to be installed at the office of the regional co-ordinator, Harare, and at four other epidemiology units where they are deemed necessary (i.e. in the "pilot countries"). Their deployment is to be decided by the Project Regional Co-ordinator in consultation with the SADC Livestock Sector Co-ordinator, and there is no obligation to purchase all five machines should they not all be deemed necessary.

MATERIALS AND SUPPLIES

Photocopy and laser printer paper, A4 size.
Diskettes, 1.44 mB
CD-ROM rewritable (for distribution of customised software)
Toner cartridges for laser printers
Fax paper
Envelopes
Labels
Pens, pencils and assorted stationary supplies

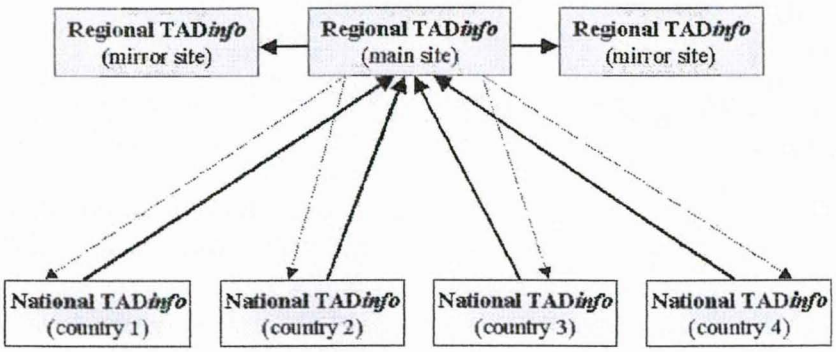
These items are intended as "start-up stocks" for the offices using the computers detailed above, and for the use of the Project's Co-ordinator.

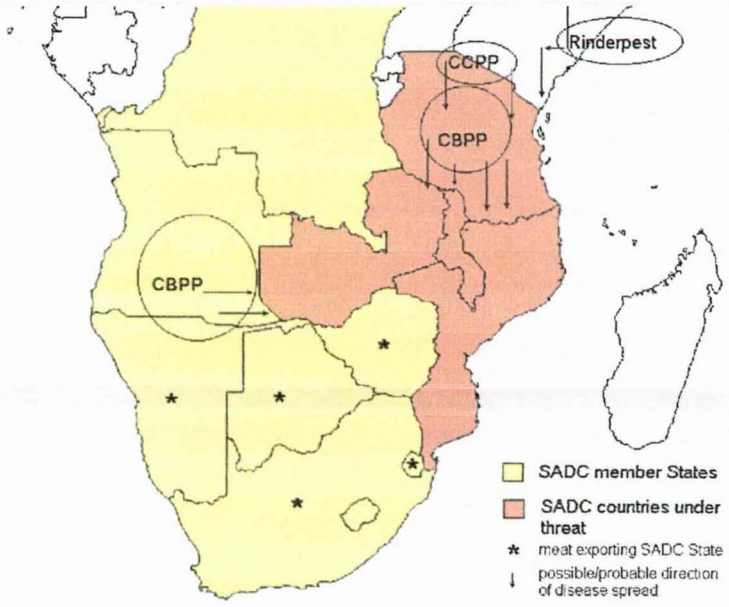
ANNEX 4

Information flow and pilot countries

Information flow design using National and Regional TADinfo software:

Information flow for SADC Early Warning System





Choice of pilot countries:

The map (left) illustrates the main disease threats existing in SADC at the moment. Tanzania is currently wrestling with the eradication of CBPP, which is threatening its neighbours to the south - Zambia, Malawi, and Mozambique. In addition, Tanzania is also threatened with Rinderpest from the north, and CCPP has already entered the country and established itself in the northern regions. Zambia faces CBPP threats from both Angola and Tanzania. Angola is currently torn by civil strife, but is nevertheless receiving TCP assistance from FAO for CBPP control. The countries judged to be most at risk, and therefore chosen for pilot activities in this project are Malawi, Mozambique, Tanzania and Zambia. They form the "frontline" currently protecting SADC's major meat exporters, which are Botswana, Namibia, Zimbabwe, South Africa and Swaziland.

ANNEX 5

Project Timetable

Proposed Project Timetable (can be modified as necessary by project co-ordinator)

Activities \ Months	1	2	3	4	5	6	7	8	9	10	11	12
Workshops			Epid training									wrap-up & Cont in. Plan.
Equipment purchase												
Consultant: Programmer					Appointment and briefing		Software Development				Software (Regional TADinfo) installation	
TCDC Consultant/s		Country visits		TCDC regional software specs + install Nat. TADinfo							Assess progress - Co-ord	
Project Co-ordinator	Appointment and briefing by SAFR	Mission - country visits	Organise w/shop	W/shop follow-up, equip't	Equip't, liaise with programmer	Contract Interruption			Liaise with programmer	Organise software installtn	Assessment mission (above)	W/shop & terminal report
FAO HQ ATS/STS		Configure Nat. TADinfo for pilot countries (at HQ)	ATS Attend workshop; follow-up URT/Malawi (3 weeks)	STS by 2 APOs - 2 weeks each in Zam/Moz								ATS - w/shop & follow-up to 4 pilot states
SADC Livestock Sector involvement	SADC identifies pilot countries		SADC advises			SADC liaison with FAO on progress with software				SADC liaison	SADC advises	SADC implements new system

ANNEX 6

SADC Corporate profile

Introduction

Originally known as the Southern African Development Coordination Conference (SADCC), the Organisation was formed in Lusaka, Zambia, on April 1, 1980, following the adoption of the Lusaka Declaration - *Southern Africa: Towards Economic Liberation* by the nine founding member states.

The Declaration and Treaty establishing the Southern African Development Community (**SADC**), which has replaced the Coordination Conference, was signed on **August 17, 1992 in Windhoek, Namibia.**

Member States are Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

Each Member State has responsibility to coordinate a sector or sectors on behalf of the others.

New Member States may be allowed to join by a unanimous decision of the SADC Summit and upon acceding to the SADC Treaty.

SADC headquarters are in Gaborone, Botswana.

The working languages of SADC are English and Portuguese

Summit

Made up of Heads of State or Government, the Summit is the ultimate policy-making institution of SADC. It is responsible for the overall policy direction and control of functions of the Community. Headed by a Chairman and Vice-Chairman, who are elected for an agreed period, the Summit meets at least once in a year. The Summit is responsible for creating Commissions, and other institutions, as well as for the appointment of the Executive Secretary and Deputy Executive Secretary.

Council of Ministers

Ministers from each member state, usually but not only those responsible for their country's economic planning or finance, make up the Council. The Council is responsible for overseeing the functioning and development of SADC and ensuring that policies are properly implemented. The Council advises the Summit on policy matters and approves SADC policies, strategies and work programmes. One of the major tasks of the Council is to decide upon sectoral areas of cooperation and the allocation of responsibility for carrying out these sectoral activities. The Council also meets at least once a year to review progress and operations of its subordinate institutions. The Chairman and Vice-Chairman of Council are appointed by member States holding the Chairmanship and Vice-Chairmanship of SADC respectively.

Sectoral Committees and Commissions

SADC has established Commissions and Sector Coordinating Units to guide and coordinate regional policies and programmes in specific areas. The sectors are allocated to individual member States to coordinate and provide leadership. Sectoral activities are supervised by Sectoral Committees of Ministers.

The Minister represents the sector coordinating country chairs the Sectoral Committee of Ministers. Sectoral Commissions may be established as and when necessary, through a convention or other instruments approved by the Summit and ratified by member states. Commissions are regional institutions, supported by all member states whereas Sector Coordinating Units are part of national

governments staffed mainly by civil servants of the sector coordinating country. Sectoral Committees and Commissions report to Council.

Standing Committee of Officials

Each member state is represented by a Permanent Secretary, or an official of equivalent rank. Like in the Council, the official usually comes from a ministry responsible for economic planning or finance. The Standing Committee acts as a technical advisory committee to the Council to whom it also reports. This group also meets at least once a year. Members of the Standing Committee have a dual responsibility as they are also National Contact Points.

National Contact Points

National Contact Points are located in the Ministry responsible for SADC matters and act as a vital link between other agencies of government and SADC organs. The National Contact Points' responsibility also includes regular consultation with and briefings of relevant government institutions, the enterprise community and media on matters relating to SADC.

Sectoral Contact Points

These are at the grassroots level in the SADC organizational structure. All government ministries with line responsibilities for SADC sector(s) are Sectoral Contact Points and work closely with the respective Sector Coordinating Units in the preparation of sectoral policies and strategies, and formulation of project proposals. Sectoral Contact Points attend and participate in sectoral meetings, and assist Sector Coordinating Units in monitoring of projects.

Secretariat

As the principal executive institution of SADC, the Secretariat is responsible for strategic planning and management of SADC programs. Headed by the Executive Secretary, who is appointed by the Summit, the Secretariat is charged with the task of implementing decisions made by the Summit and the Council. The Secretariat organizes and manages SADC meetings and is responsible for the financial and general administration of the Community. Diplomatic representation and promotion of SADC is also undertaken by the Secretariat.

IFAD

PROAGRI

- ✓ During the beginning of the 1990s, the idea of PROAGRI took shape.
- ✓ In 1995 a new Agricultural Policy was adopted which provided the basic policy framework for unifying donors behind a sector-wide investment program for the Agricultural development (PROAGRI) that has the following overarching principles:
  - Poverty reduction,
  - Policies, programs and activities focused on smallholder farmers concerning access to land, inputs and markets,
- ✓ During the early phases of PROAGRI, much emphasis was laid on eradicating rural poverty.
- ✓ Consensus is now emerging on the need to restructure the ministry so that it can perform its role with a strong mandate for policy making, creation of an enabling environment and provision of services

ANNEXE 5

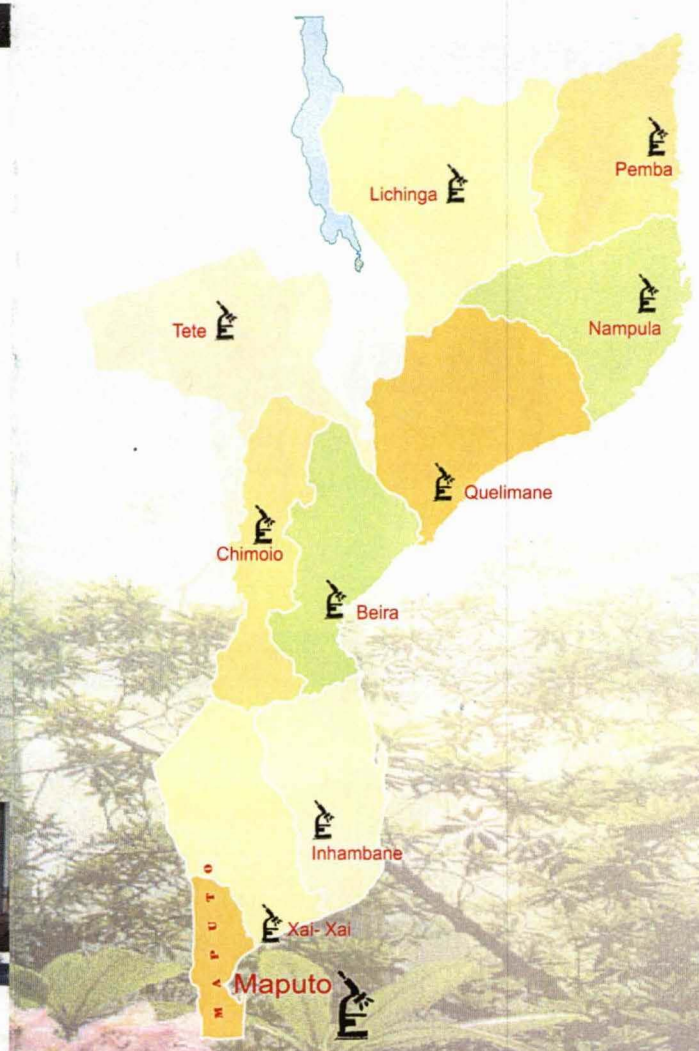
INIVE

- PRÉSENTATIONS
- PROPOSITIONS

COORDINATION AND LINKAGE

- National Directorate of Livestock. Mozambique
- Directorate of Rural Extension, Mozambique
- Animal Production Institute, Mozambique
- National Institute for Agronomic Studies, Mozambique
- Centre for Forestry and Experimental Studies, Mozambique
- Eduardo Mondlane University, Mozambique
- Ministry of Health, Mozambique
- Veterinary Research Institutions in the SADC region
- International Veterinary Research Organizations

Research of the causes of calf neonatal diarrheas



ADDRESS

NVRI

NATIONAL VETERINARY RESEARCH INSTITUTE

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Maputo - Mozambique

Telefone: 258 (1) 475161, 258 (1) 475170/1 - Fax: 258 (1) 475172

Email: INIVEI@Teledata.mz

Republic of Mozambique

Ministry of Agriculture and Rural Development

National Veterinary Research Institute (NVRI)

To undertake multidisciplinary studies in the area of veterinary research and technology, in coordination with other organizations and

INTRODUCTION

The National Veterinary Research Institute (NVRI) is an institution within the Ministry of Agriculture and Rural Development. NVRI comprises the Central Laboratory located in Maputo, supported by 9 provincial laboratories (LPV's). NRVI is the only network of veterinary laboratories in Mozambique.

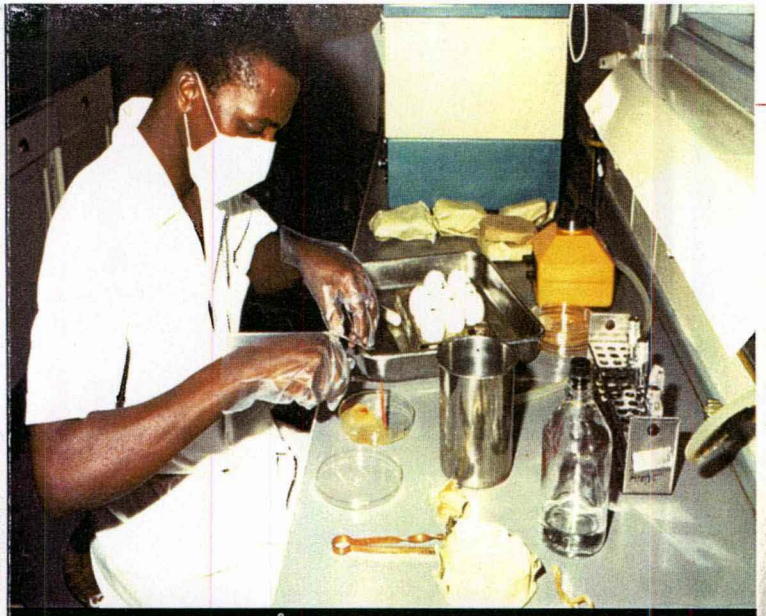
MANDATE

- To undertake multidisciplinary studies in the area of veterinary research and technology, in coordination with other organizations and institutions
- To provide specialized services to assist in the prevention of major diseases causing morbidity and mortality which hamper livestock production

PRIORITY

- To conduct research in classes of livestock owned by the majority of villagers

Gross examination



Diagnosis of viral diseases

RESEARCH STRATEGY

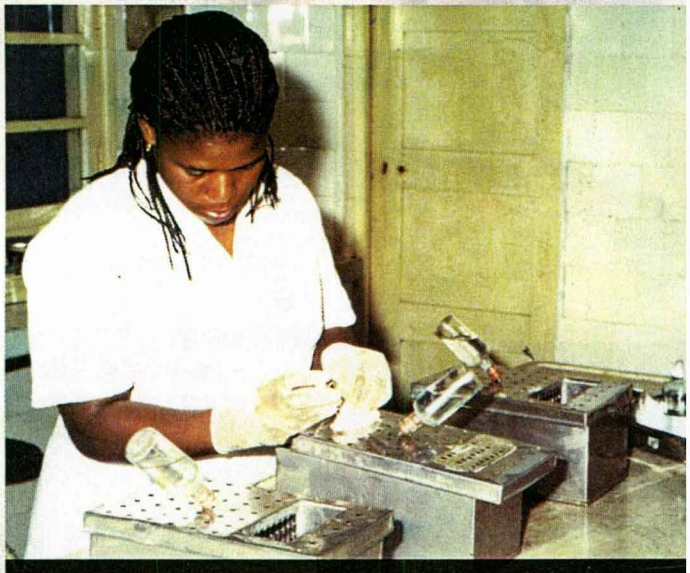
Research at NVRI focuses on the livestock species owned by the majority of villagers in Mozambique, namely poultry and goats. Some specific problems of pigs and cattle are also investigated.

CURRENT ACTIVITIES

- Research animal diseases including zoonoses
- Quality control and food hygiene
- Production of biologicals (vaccines and antigens)
- Quality control of biologicals and pharmaceuticals
- Training of basic and medium level laboratory technicians

SERVICES OFFERED

- Diagnostic of bacterial, fungal, parasitic and viral infections of domestic animals
- Viral and bacterial vaccines for poultry, cattle and dogs
- Antigen production (Tuberculin and Brucella antigen)
- Quality Control of pharmaceuticals and Biologicals
- Microbiological analyses of feed for animal consumption and food of animal origen for human consumption
- Microbiological examination of seafood for export
- Chemichal analysis of milk, feed, water, pasture, and deep tank fluids Toxicological analyses (aflatoxins)
- Destiled and deionised water
- Blood for cultured media for diagnostic purposes
- Destruction of biologicals waste and animal carcasses
- Training



Vaccine quality control

INSTITUTO NACIONAL DE INVESTIGAÇÃO VETERINÁRIA

ORGANIGRAMA DO "INIVE"

CURRENT ACTIVITIES

- ✓ Research on animal diseases including zoonoses ;
- ✓ Quality control and food hygiene;
- ✓ Production of biologicals (vaccines and antigens): Rabies, Newcastle (LaSota and I-2), Anthrax, Blackquarter, Tuberculin, Brucella abortus S19;
- ✓ Quality control of biologicals and pharmaceuticals;
- ✓ Training of basic and medium level laboratory technicians;

HUMAN RESOURCES	**Headquarters**	**Provincial veterinary laboratories**
Veterinarians	15	2
Medium Level Technicians	23	9
Basic Level Technicians	30	9

Parecer acerca da participação do INIVE no projecto regional da zona do Oceano Índico

O projecto em causa tem o maior interesse para Moçambique, pois constitui mais um meio de se reforçar os meios de vigilância sanitária, laboratórios de veterinária, sistemas de comunicação, e coordenar-se todo este trabalho com os países desta região.

Como doenças prioritárias, proponho as seguintes:

Febre do Vale do Rift
Peste Suína Africana
Raiva
Brucelose
Carbúnculos
Tuberculose

Quanto aos aspectos em que a participação do INIVE deveria ter mais peso:

- Desenvolvimento de laboratórios situados mais perto dos países da região, e que ainda não beneficiaram de outros projectos: Cabo Delgado, Sofala, Inhambane;
- Melhoria dos meios de comunicação;
- Uso de técnicas rápidas de diagnóstico de campo;
- Formação de pessoal de laboratório;
- Reforço do serviço de controle de qualidade das vacinas a usar no controle das doenças mencionadas (padronização de técnicas de controle).

PAULA DIAS

PROPOSITION DE L'INIVE POUR SA PARTICIPATION AU PROJET RÉGIONAL OCÉAN INDIEN

- Le projet proposé est considéré comme très important pour le Mozambique, puisqu'il constitue une ressource supplémentaire pour le renforcement des moyens de vigilance sanitaire des laboratoires vétérinaires, des systèmes de communication ainsi que de la coordination au niveau régional.

- Pour l'INIVE, les maladies prioritaires sont :

  - ✓ La fièvre aphteuse
  - ✓ La peste porcine africaine
  - ✓ La rage
  - ✓ La brucellose
  - ✓ La tuberculose

- L'INIVE demande un appui du projet pour :

  - Le développement de laboratoires situés près des frontières et n'ayant encore bénéficié d'aucun appui : Cabo Delgado (au nord du pays), Sofala (au centre), Inhambane (au sud) ;
  - L'amélioration des moyens de communication ;
  - L'usage de techniques rapides de diagnostic de terrain ;
  - La formation de personnel de laboratoire ;
  - Le renforcement du service de contrôle de qualité des vaccins existants contre les maladies prioritaires (standardisation des techniques de contrôle).

Virology Sector

Training Needs - 2001 -2002

Name	Present academic qualification	Training required	Field of Training/ specialization	Year
1. Manuel Reis Silva	MSc, Veterinary Science, Virology Pig diseases (ASF)	Characterization and quantification of animal viruses. Research projects	Immunology and Molecular Virology Management of Research Projects	2001/2
2. Jacinto Gabriel Banze	Senior Laboratory Technician (bovine, and pig diseases)	Preparation and purification of viral antigens for serology, and quantification of viruses. Insights in molecular techniques for virus identification using PCR.	Immunology/ and Basic Molecular techniques,	2001/2
3. Lourenço Elias Balate	Básic Laboratory Technician, (avian diseases and rabies)	Preparation of specimens for virus isolation. Propagation and identification of viruses and Chlamydiae, using embryonated eggs, cell culture systems and laboratory animals.	Diagnostic methods in Virology and Serology (HA, SN, FAT, ELISA).	2003
3. Virgínia Nhabomba 1ère URGENCE	Senior Laboratory Technician, Cell Culture system for virus propagation, virus isolation and antigen production	Production and maintenance of cell cultures for virus isolation. Preparation of balanced salt solutions and tissue culture medium for maintenance of cell culture systems	Production and maintenance of cells and organ culture systems.	2002 (2-3 MONTHS)

Bacteriology and Serology Sections

Training Needs - 2002 -2003

Name	Present academic qualification	Training required	Field of Training/ specialization	Year
1. Sara Achá	MSc, Veterinary Science, (Bacteriology) CBPP, Tuberculosis and Brucellosis	Specific Diagnostic techniques for Isolation and Identification of Causal Agents	Bacteriology, Immunology and Molecular Techniques	2002
2. Gawana Bazima	Senior Laboratory Technician (Bacteriology) CBPP, Tuberculosis and Brucellosis	Specific Diagnostic techniques for Isolation and Identification of Causal Agents	Bacteriology, Immunology and Molecular Techniques	2002
3. Anabela Manhiça	DVM, Veterinary Medicine	Serological Diagnosis of Brucellosis	ELISA Technique	2003
4. Milagre Mulome	Senior Laboratory Technician	Serological Diagnosis of Brucellosis	ELISA Technique	2003

Needs on Improved Techniques at INIVE:

1. Establishment of Specific techniques for the diagnosis of CBPP at Bacteriology Section
2. Establishment of Specific techniques for Bacteriological diagnosis of Brucellosis (Identification techniques) at Bacteriology Section
3. Establishment of ELISA technique for Serological diagnosis of Brucellosis at Serology Section
4. Establishment of Specific Diagnostic techniques (ELISA and Molecular Biology) for Rabies, ASF and FMD at Virology Section

ANNEXE 6

- DÉROULEMENT DE LA MISSION
- PERSONNES RENCONTRÉES

DÉROULEMENT DE LA MISSION

Mercredi 4 juillet 2001

- Matin : Vol international Johannesbourg / Maputo – Arrivée à MAPUTO en fin de matinée, transfert à l'hôtel

- Après-midi :
  - Entretien avec M. P. BACHERE, Conseiller de Coopération et d'Action Culturelle au SCAC de Maputo
  - Réunion de travail à l'Unité d'épidémiologie de la DINAP à Maputo avec :
    - ✓ Dr Adolfo Paulo MAVALE
    - ✓ Dr C. LOPES PEREIRA
    - ✓ Dr Fernando RODRIGUEZ

    En présence de M. P. BACHERE
  - Réunion au SCAC de Maputo avec :
    - ✓ M. Paul JEAN-REMY (AFD)
    - ✓ M. Eric GRANRY (PDPPM-SOFRECO)
    - ✓ Dr Milagre MUHATE (PDPPM-SOFRECO)

    En présence de M. P. BACHERE.

Jeudi 5 juillet 2001 :

- Matin :
  - Réunion de travail à la DINAP à Maputo avec :
    - ✓ Dr Rosa F. DA COSTA (INIVE)
    - ✓ Dr Paula DIAS (INIVE)
    - ✓ Dr VENTURA MACAMO (DINAP)

    En présence de M. P. BACHERE
  - Entretien au Ministère de l'Agriculture et du Développement Rural à Maputo avec S.E. M. Joào ZAMITH CARRILHO, Vice-Ministre, en présence des participants à la réunion précédente.

- Après-midi :
  - Consultation de documents.

Vendredi 6 juillet 2001 :

- Matin :
  - Réunion de travail à l'INIVE à Maputo avec :
    - ✓ Le Dr Rosa F. DA COSTA
    - ✓ Le Dr Paula DIAS
    - ✓ Le Dr Manuel REIS SILVA
    - ✓ Le Dr Alsa'cia ATANASIO

    et visite de l'ensemble des laboratoires de diagnostic, de recherches et de production de vaccins.

- Réunion de travail à l'Unité d'épidémiologie de la DINAP à Maputo avec :
  - ✓ Le Dr Adolfo Paulo MAVALE
  - ✓ Le Dr Carlos LOPES PEREIRA
- Entretien final avec M. P. BACHERE, Conseiller de Coopération et d'Action Culturelle au SCAC de Maputo.

➢ Après-midi :
- Transfert à l'aéroport de Maputo. Vol international Maputo / Johannesbourg
- Nuit à Johannesbourg (aéroport).

Samedi 7 juillet 2001 :

➢ Vol international Johannesbourg / Antananarivo
➢ Arrivée à Antananarivo dans l'après-midi.

PERSONNES RENCONTRÉES

- **Ministère de l'Agriculture et du Développement Rural :**

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    Direction Nationale de l'Elevage

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      - ✓ Dr Adolfo Paulo MAVALE
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      - ✓ Dr Carlos LOPES PEREIRA (assistant technique)
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        e.mail : netline@tropical.co.mz

    - **Unité de Santé Publique Vétérinaire**
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        Unité d'Epidémiologie Vétérinaire
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        Tel : (258) 1 46 00 50 (standard)
        (258) 1 46 04 94 (direct)
        Fax : (258) 1 46 04 79
        e.mail : verdinap@teledata.mz
        homepage : www.teledata.mz/verdinap

  - Instituto Nacional de Investifação Veterinária (INIVE)
    National Veterinary Research Institute (NVRI) :

    - ✓ Dr Rosa F. DA COSTA : Directeur National
    - ✓ Dr Manuel REIS SILVA : Directeur Adjoint
    - ✓ Dr Paula DIAS : Chef du Département de contrôle de qualité des vaccins
    - ✓ Dr Alsa'cia ATANASIO : responsable du département diagnostic et recherche.

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  - M. Paul JEAN-REMY
    AFD

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