FAO-EuFMD-OIE
Progressive Control Pathway (PCP) for FMD: Principles, practice and lessons learnt in the West Eurasia FMD Roadmap

Presented by Keith Sumption – with acknowledgements to PCP team in FAO, EuFMD and OIE

Scientific Developments and Technical Challenges in the Progressive Control of FMD in South Asia
Feb 13- 15, 2012 in New Delhi, India.
Summary

PCP-FMD

- In use since 2008
- Joint FAO-EuFMD-OIE Tool
- 5 stages
- Outcome oriented, evidence based
- Strategy development
- Gap analysis
- Comparative
- Work in progress:
  - Tools for assessment
  - Linkages to PVS
The PCP for FMD

- Background; the rationale and principles
- Practice: Criteria and Assessment
- Lessons leanrt
- Acknowledgements
  - This is the work of MANY
Background: public-private policy issues affecting progress

- lack of incentives at national level
- lack of incentives at producer level to invest in prevention
- lack of opportunity to purchase vaccine (state controlled access, limited or no suppliers, cold-chain issue)
- lack of technical advice to guide vaccine purchase
- commonplace high risk situations: open borders/ classical transboundary rangeland issues, and wildlife-domestic interface
- lack of confidence in the vaccination approach to area wide FMD control

FMD is common and damaging disease – but who benefits and who should pay for control?
Background – the behaviour challenge: FMD control – what’s in it for me?
Background – the market chain challenge

• “if I was vaccinated, I would be less risk when traded”
Background – the scale of under-reporting
Wagging fingers does not change behaviours
Faced with such challenges...the PCP –FMD needed to be:

- **Simple** – to communicate, and apply
- **Comprehensive** – technically sound, critical factors for success are addressed
- **Credible** – progress must be validated with evidence
- **Progressive** – easy to enter, each stage a base for progress
- **Risk based** – with focus on optimising impact of limited resources, avoid prescriptions
- **Rewarding** – potential gains from every Stage
- **Objective** – promoting and rewarding active monitoring and the use of evidence
- **Environmentally neutral** – and part of the solution to develop integrated approaches involving wildlife
PCP concepts -1
Focus of control – changes with Stage

1. Identify risk and control options
2. Implement risk-based control
3. Maintain zero circulation and incursions
4. Implement Control strategy to eliminate circulation
5. Maintain zero circulation; withdraw vaccination

Event based control (and population level)
Population level control
Sector or herd level control
Target population Changes with progression

FMDV Incidence

Objective Assessment of Progress of PCP for FMD
PCP Concept 2
Monitoring (and at higher levels – Surveillance) - is a key principle of the PCP

1. Identify risk and control options
2. Implement risk-based control
3. Maintain zero circulation and incursions
4. Implement control strategy to eliminate circulation; maintain zero circulation; withdraw vaccination
5. Confirm FMD free

Surveillance Objectives change with progression

- Monitor FMD epidemics – and & risk as needed to develop risk-based control program
- Monitor implementation & impact of the control program
- Early detection & response to incursions
- Surveillance Objectives change with progression

Objective Assessment of Progress of PCP for FMD
PCP – stepwise along the road

- Country Stages - facilitate progress monitoring
- at national and regional level
- Global scale - across Regional Roadmaps
- and at every stage generates information for risk assessment
Areas where PCP-FMD has been used - in assessment, and longer term planning
Rationale

from Cricket

- Find your enemy's weakness
- Plan your attack
- Stick to your strategy but re-assess regularly
- Measure progress
- Stop the opponent scoring
- Below the required run rate – they cannot win
Progressive Cricket Pathway

• One size does not fit all
  – Specialised teams and Strategy for EACH form of competition
• Accept the Road to the Top has steps – and temporary reverses
• Remember the opposition evolves, especially under pressure
• The higher you rise, the less you can relax – needs continual management support and investment
• And
• Sponsorship helps…but
  – noisy national support even more!
  – And media attention!!
PCP Stage 1 Focus: “To gain an understanding of the epidemiology of FMD in the country and develop a risk-based approach to reduce the impact of FMD”

Comparable with Risk Assessment

Objective Assessment of Progress of PCP for FMD
PCP Stage 1 Focus: “To gain an understanding of the epidemiology of FMD in the country and develop a risk-based approach to reduce the impact of FMD”

Comparable with Risk Assessment
PCP Stage 2 Focus: “To implement risk based control measures such that the impact of FMD is reduced in one or more livestock sectors and/or in one or more zones”

Comparable with sector level Risk Management
PCP Stage 2 Focus: “To implement risk based control measures such that the impact of FMD is reduced in one or more livestock sectors and/or in one or more zones”

Comparable with sector level Risk Management
PCP Stage 2 - examples of national strategies

• FMD as a public good
  – State supported vaccination to reduce DISEASE
  – State supported FMD control zones to protect the rest of the population (HIGH RISK areas)

• FMD as a private good:
  – Emphasis on private sector action to protect themselves
  – Private sector (stakeholders) can purchase quality vaccines
  – Public role is to monitor FMD risk, license vaccines, and communication.
PCP Stage 2: other examples relevant to South Asia

- FMD control as private and public good:
  - Define sectors that can pay for their vaccination (smallholder dairy?)
  - Define zones where public funded control is for public good: e.g. along borders, zones supplying animal markets.....
  - Reach stakeholder consensus, implement and monitor impact in each sector/zone
  - Examples:
    - State funded buffer zone vaccination, private sector vaccination elsewhere (Georgia)
Stage 2 of the PCP: 5 outcomes

1. **Ongoing monitoring** of circulating strains and risk in different husbandry systems
2. Risk-based **control measures are implemented** for the sector or zone targeted, based on the FMD strategic control plan developed in Stage 1
3. It is clearly established that **the impact of FMD is being reduced** by the control measures in at least some livestock sectors and/or zones
4. There is further development of an **enabling environment** for control activities

AND TO PROGRESS TO STAGE 3:

5. A **revised, more aggressive control strategy that has the aim of eliminating FMD from at least a zone of the country has been developed**
Risk management

FMD control

- Legislation
- Stakeholder participation
- Communication
- Knowledge about FMD transmission
- Veterinary Services competence
- Finances

Objective Assessment of Progress of PCP for FMD
PCP Stage 3 Focus: “Progressive reduction in outbreak incidence, followed by elimination of FMD virus circulation in domestic animals in at least one zone of the country”

Comparable with population level Risk Management

Objective Assessment of Progress of PCP for FMD
PCP Stage 3 Focus:

"Progressive reduction in outbreak incidence, followed by elimination of FMD virus circulation in domestic animals in at least one zone of the country"

Objective Assessment of Progress of PCP for FMD

Comparable with population level Risk Management
Objective Assessment of Progress of PCP for FMD

Comparable with population level
Risk Management
Moving up means institutionalisation of FMD control

1. Identify risk and control options
2. Implement risk-based control
3. Maintain zero circulation and incursions
4. Implement control strategy to eliminate circulation
5. Maintain zero circulation; withdraw vaccination

Institutionalisation

Organisation

Studies

Incidence

Objective Assessment of Progress of PCP for FMD
AND (TO Repeat) – to PROGRESS TO STAGE 4:

There is a body of evidence that FMD virus is not circulating endemically in domestic animals within the country or zone.
PCP Stage 4 Focus: “To maintain ‘zero tolerance’ of FMD within the country or zone and eventually achieve OIE recognition of FMD-free with vaccination”

Event based (respond/eliminate) control - in addition to population level risk management
PCP Stage 4 Focus: “To maintain ‘zero tolerance’ of FMD within the country or zone and eventually achieve OIE recognition of FMD-free with vaccination”

Objective Assessment of Progress of PCP for FMD
PCP Stage 5 Focus: “To maintain ‘zero incidence’ of FMD within the country/zone and eventually achieve OIE recognition of FMD-free without vaccination”

Event based (respond/eliminate) control - in non-vaccinated populations
The PCP in practice

Use as a Tool - defining activities and gaps.
Assessment.
PCP Stage 1 Focus: “To gain an understanding of the epidemiology of FMD in the country and develop a risk-based approach to reduce the impact of FMD”
AND TO PROGRESS TO STAGE 2:

8. A strategic FMD control plan that has the aim of reducing the impact of FMD in at least one zone or husbandry sector is developed
Stage 1 of the PCP: 8 outcomes

1. Husbandry systems......are described and understood
2. ....a ‘working hypothesis’ of how FMD virus circulates in the country has been developed
3. Socio-economic impact .........has been estimated
4. The most common circulating strains of FMDV identified
5. ..........progress towards an enabling environment for control activities
6. ..... transparency and commitment to .....regional FMD control
7. Important risk hotspots for FMD transmission are identified
**Stage 1 examples: Value chain analysis in Iran**

- Understanding animal movement patterns can be critical for planning effective FMD control.
Iran serosurvey
Risk of NSP seropositivity in West Azarbaijan province

- Can be useful to target control
- Baseline for comparison after interventions introduced
Strategic FMD control plan written

1) Susceptible host: میزبانی که عامل بیماری در آن بتواند ایجاد بیماری بالینی بنماید.

2) Contact transmission: نوعی از انتقال بیماری در اثر تماس از انتقال که در اثر تماس مستقیم یا غیر مستقیم بین حیوان آلوده و حیوان حساس ایجاد می‌شود. انتقال از طریق تماس مستقیم (direct contact) در بیماری‌های آمیزشی Indirect و انتقال از طریق تماس غیر مستقیم (contact) در اثر آلودگی حیوان
Assessment of national PCP stage

Don’t forget me when you make your paper strategies
Tool 1: Self Assessment

• Written questionnaire for veterinary services:
  • Follows PCP Guidelines – Outcomes for each Stage
  • Questions based on defined criteria and questions - each Outcome
  • Yes/no answers explained by manual
  • Minimum Requirements differ by outcome
  • Yearly completion - to retain status, demonstrate commitment

• Enables PCP- Gap Analysis
• Enables review/revision of forecast progress
• Yearly completion recommended
Tool 2: External Assessment

• External assessment includes
  – FAO (and OIE experts) reviewing national self-assessments
  – Expert review with national authorities - FAO/OIE Workshops
  – Country visits – assessment with national representatives
  – Regional Meetings with opportunities for countries to assess presented progress reports - peer-to-peer scrutiny

• Comparison of progress on paper – with evidence from monitoring and surveillance reports

• Year to Year change - both “paper” and direct measures (incidence)
Assessment of PCP Stages – West Eurasia FMD Roadmap

- 2008: self-assessment by countries with peer review (FAO)
- 2009 (Istanbul):
  - upon submission of evidence of actions required at each stage
  - presentation/review at Regional Meeting
  - 2 month period post-Meeting to supply information, if required
- 2009: Roadmap progress on track
- 2010: second Progress Review. Used modified PCP following October 2010 review.
# West-Eurasia regional roadmap

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- Azerbaijan
- Georgia
- I.R. Iran
- Iraq
- Kazakhstan
- Kyrgyzstan
- Pakistan
- Syria
- Tajikistan
- Turkey
- Turkmenistan
- Uzbekistan

## Level 1 - Z

- Afghanistan
- Armenia
- Azerbaijan
- Georgia
- I.R. Iran
- Iraq
- Kazakhstan
- Kyrgyzstan
- Pakistan
- Syria
- Tajikistan
- Turkey
- Turkmenistan
- Uzbekistan

## Level 2 - N

- Afghanistan
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- Georgia
- I.R. Iran
- Iraq
- Kazakhstan
- Kyrgyzstan
- Pakistan
- Syria
- Tajikistan
- Turkey
- Turkmenistan
- Uzbekistan

## Level 3 - Z

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- Georgia
- I.R. Iran
- Iraq
- Kazakhstan
- Kyrgyzstan
- Pakistan
- Syria
- Tajikistan
- Turkey
- Turkmenistan
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## Level 4 - N

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- Azerbaijan
- Georgia
- I.R. Iran
- Iraq
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## Level 5 - Z

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- I.R. Iran
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- Uzbekistan
**Regional Roadmap (2010 – prior to Regional Consultation) (South Asia - Pool 2)**
(To be updated at Delhi – Feb 2011)

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* Afghanistan and Pakistan are participating in the West Eurasia roadmap

**Legend**

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### Outlook of Southern Africa Regional Roadmap (FAO-OIE meeting in Gaborone, March 2011)

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<tr>
<td>Moz zone (Tete, Manica)</td>
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<tr>
<td>Moz zone (south)</td>
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<td>Swaziland</td>
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<td>Zambia zone</td>
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<tr>
<td>Zambia zone (East)</td>
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<tr>
<td>Zimbabwe</td>
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<tr>
<td>Botswana</td>
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</tbody>
</table>

### Level Map

- **N** (Lowest Level)
- **Z** (Highest Level)
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Achievement</th>
<th>Total number of issues asked for</th>
<th>Minimal number of issues required</th>
<th>Additional number of issues requested</th>
</tr>
</thead>
<tbody>
<tr>
<td>To enter Stage 1</td>
<td>To have a comprehensive plan to study epidemiology and socio-economics of FMD</td>
<td>7</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Outcome 1</td>
<td>All husbandry systems, the livestock marketing network and associated socio-economic drivers are well described for FMD susceptible species</td>
<td>12</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Outcome 2</td>
<td>Describe the FMD distribution and develop working hypothesis of how FMD circulates</td>
<td>9</td>
<td>5</td>
<td>4</td>
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<tr>
<td>Outcome 3</td>
<td>Estimate socio-economic impact on different stakeholders</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Outcome 4</td>
<td>ID circulating strains</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Outcome 5</td>
<td>Development of enabling environment, strengthening VS</td>
<td>8</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Outcome 6</td>
<td>Demonstrate transparency and commitment to FMD control in region</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Outcome 7</td>
<td>Identify important risk hotspots for FMD transmission</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Outcome 8</td>
<td>To adopt a strategic FMD control plan, based on risks and socio.econom. impacts</td>
<td>10</td>
<td>3</td>
<td>7</td>
</tr>
</tbody>
</table>
### Assessment checklist – and output as spiderweb chart

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Criteria</th>
<th>Questions</th>
<th>Checklist - Y/N/Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>To enter Stage 1</td>
<td>Plan is comprehensive</td>
<td>1.1 Is there a written plan in place to study the epidemiology and socioeconomic impact of FMD?</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2 Does the plan include a study of the structure of livestock production throughout the country for all FMD susceptible species (cattle, sheep, goats)?</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3 Does the plan include activities to estimate FMD prevalence?</td>
<td>1</td>
</tr>
<tr>
<td>To have a comprehensive plan to study epidemiology and socio-economics of FMD</td>
<td>Quality indicators</td>
<td>1.4 Does the plan include a timeline for activities?</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.5 Does the plan include a budget estimate for each activity?</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.6 Does the plan describe the organisational structure to carry out the study (defined roles and responsibilities, nominated persons)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.7 Have any of the activities described in the plan been initiated?</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Outcome 1

**Stakeholders include farmers/producers PLUS all of the main players (people, organizations, companies) involved in breeding, transport of animals, milk/meat processing, feeding and marketing of animals. There could be scoring for these questions: identified all, most, some, none.**

<table>
<thead>
<tr>
<th>Questions</th>
<th>Checklist - Y/N/Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2 Have key stakeholders involved in cattle production been identified?</td>
<td>0</td>
</tr>
<tr>
<td>1.3 Have key stakeholders involved in small ruminant production been identified?</td>
<td>0</td>
</tr>
<tr>
<td>1.4 Have key stakeholders involved in swine production been identified?</td>
<td>0</td>
</tr>
<tr>
<td>Information should be available about numbers, origin and destination, drivers or motives for the movement and any seasonal patterns there could be scoring based on how completely movements have been described (e.g. origin and destination known but not numbers, or for commercial farms only...).</td>
<td>0</td>
</tr>
<tr>
<td>1.5 Are movements of animals within the country well understood for cattle?</td>
<td>0</td>
</tr>
</tbody>
</table>

### Quality indicators

<table>
<thead>
<tr>
<th>Questions</th>
<th>Checklist - Y/N/Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6 Have any of the activities described in the plan been initiated?</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Criteria

- Country's percentage achievement totally
- Minimum requirements for fulfilling Stage 1
- Percentage achievement-required

### Diagram: Spiderweb Chart

- **1. Value chain analysis**
- **2. FMD distribution & hypothesis**
- **3. Socio-economic impact**
- **4. Circulating strains**
- **5. Strengthening Veterinary Services**
- **6. Commitment to regional approach**
- **7. Identification of "Hotspots"**
- **8. Strategic FMD control plan**
Verifiable indicators: results from monitoring

• **Sero-monitoring:**
  – Incidence (NSP serology, options)
  – Year-on-year change
  – Performance of vaccination

• Auditing of vaccination implementation

• Performance of movement control systems

• Surveillance – performance of different components

• Virological – for indicators of incursions and internal movements
Example – Turkey

- One zone FMD free with vaccination (Current Status suspended)
- Anatolia – PCP Stage 2
- Mass vaccination programmes – all LR (twice), SR (once)
- 4 times more SR than LR in infected zone
- 2009-2010: RECORD achievement in vaccination coverage
- 2010: massive epidemic type O (Panasia 2, ANT-10 lineage)
- 1715 outbreaks
- Spread to EU
- Political disaster
Comparison of FMD Situation in 2009 and 2010

- Sero-surveillance
  - In 2009: 4.7% (LR 4-12 months)
  - In 2010: 12.7% (LR 4-12 mo)

- Number of outbreaks;
  - In 2009: 214 (at spring serosurvey: 81)
  - In 2010: 1715 (at spring serosurvey: 432)

- Average number of animals with clinical disease per outbreak;
  - In 2009: 15,8
  - In 2010: 44,0 (variation - 0.6 to 23%, by Province)

- Epidemic outbreak numbers a poor guide to level of control

- Monitoring - better to use routine report data, sero-surveillance and outbreak investigation in an integrated assessment
2010: DISTRIBUTION OF NSP PREVALENCE (LR)

39th General Session of the EuFMD Commission, 27/28 April 2011 Rome, Italy
2010 : NSP PREVALENCE -SR

%  
0-5
5-10
10-20
20-40
40-80

39th General Session of the EuFMD Commission, 27/28 April 2011 Rome, Italy
## Turkey - Estimated Prevalence (NSP) by Age

### FOR LR (2009-2010)

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>2010 (%)</th>
<th>2009 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-12</td>
<td>12,77</td>
<td>4,77</td>
</tr>
<tr>
<td>12-18</td>
<td>10,28</td>
<td>10,30</td>
</tr>
<tr>
<td>18-24</td>
<td>14,29</td>
<td>14,18</td>
</tr>
<tr>
<td>TOTAL</td>
<td>12,34</td>
<td>8,07</td>
</tr>
</tbody>
</table>

### For SR (2010)

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>NEG</th>
<th>POS</th>
<th>TOTAL</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>12-18</td>
<td>11730</td>
<td>2749</td>
<td>14479</td>
<td>18,99</td>
</tr>
<tr>
<td>18-24</td>
<td>1264</td>
<td>401</td>
<td>1665</td>
<td>24,08</td>
</tr>
<tr>
<td>4-12</td>
<td>12419</td>
<td>2033</td>
<td>14452</td>
<td>14,07</td>
</tr>
<tr>
<td>TOTAL</td>
<td>25987</td>
<td>5382</td>
<td>31369</td>
<td>17,16</td>
</tr>
</tbody>
</table>
Stage 3 means

- Implementation of surveillance: which differs from monitoring (PCP stage 1-2)
- +ve surveillance finding - results in a **response action**
- **Aim to eliminate circulation in zone/country**
- Can have zones in Stage 3 and others at 1-2 in same country
- Assessment therefore requires evidence from surveillance indicators of follow-up actions
PCP – Plenty to Chew over, Properly
Working together

- Stage 0: Identify risk and control options
  - FMD risk not controlled. No reliable information

- Stage 1: Implement risk-based control
  - FROM 0 to 1: Comprehensive study of FMD epidemiology planned

- Stage 2: Implement control strategy to eliminate circulation
  - FROM 1 to 2: Risk-based FMD control plan
  - FROM 2 to 3: Develop aggressive strategy to eliminate FMD
  - FROM 3 to 4: No endemic FMD in domestic livestock

- Stage 3: Maintain zero circulation & incursions
  - FROM 4 to 5: Apply for official status (OIE): 'free WITHOUT vaccination'

- Stage 4: Maintain zero circulation & incursions; withdraw vaccination
  - FROM 4 to 5: Apply for official status (OIE): 'free WITHOUT vaccination'

- Stage 5: Free without vaccination

Supporting sustainable National Strategies as part of Regional Long Term Roadmaps
Acknowledgements

- Giancarlo Ferrari, Peter De Lœuw
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- CVOs of West Eurasian countries
- EC (DG-SANCO –Trust Fund; Alf Füssel)
- FAO (J. Domenech, J. Lubroth, G Ferrari, J Pinto)
- OIE (G. Bruckner, J Domenech)
- FAO World Reference Laboratory (WRL) Pirbright (D Paton, Jef Hammond)

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  - RAHCs in Kathamndu, Beirut, Tunis, FAO Ankara and Cairo