

# 中华人民共和国国家环境保护总局

STATE ENVIRONMENTAL PROTECTION ADMINISTRATION

115 Xizhimennel, Nanxiaojie, Beijing 100035, the People's Republic of China

## FACSIMILE SHEET

|  |  |
|--|--|
| Date: Nov. 17, 2006                                | No. of Pages: 14                               |
| To:  | From:  |
| Name: Mr. Maged Younes                             | Name: Ruisheng Yue                             |
| Dept.: Secretariat of Stockholm Convention on POPs | Dept.: Department of International Cooperation |
| Tel/Fax: 41-22-797-3460                            | Tel/Fax: 86-10-66556513                        |

**Subject:** Questionnaire on Evaluation of the Continued Need for DDT for Disease Vector Control

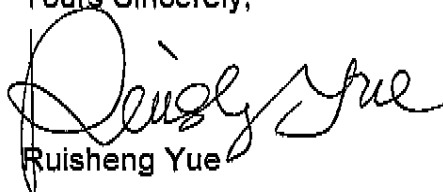
Dear Mr. Maged Younes,

Pursuant to paragraph 4 of Part II of Annex B to the Stockholm Convention, every three years, each party that uses DDT for disease vector control shall provide to the Secretariat and the World Health Organization information on the amount used, the conditions of such use and its relevance to that party's disease management strategy.

Please find attached the completed questionnaire for year 2003-2005 (an e-version of this questionnaire has been sent to your E-mail address). We apologize for not meeting the deadline but it was really time-consuming to gather all the information required.

Thank you for your cooperation.

Yours Sincerely,



Ruisheng Yue

Deputy Director General

Department of International Cooperation, SEPA

**Annex III to decision SC-1/25**

**Format for reporting by each Party that uses DDT for disease vector control pursuant to paragraph 4 of part II of Annex B to the Stockholm Convention on Persistent Organic Pollutants and questionnaire for reporting other information relevant to the evaluation of the continued need for DDT for disease vector control**

**COUNTRY: People's Republic of China..... 3-year reporting period: 2003 - 2005**

|   |  |
|---|--|
| <b>Name of principal reporting official</b> | Yang Xiaoling  |
| <b>Designation</b>                          | Director   |
| <b>Agency name and address</b>              | Office for Stockholm Convention Implementation, 115 Xizhimen Nanxiaojie, Beijing 100035, China |
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| <b>Signature of official</b>                | ..... Date: ...Oct. 26, 2006   |

**SECTION A: PRODUCTION AND USE OF DDT**

**A.I. SOURCES OF DDT**

**In-country production**

1. Is DDT produced in your country ? YES  NO  (If NO, proceed to question # 4)

2. If yes, please list the DDT production facilities in the country:

| No.  | Production Facility and location | Total production capacity (kg) | Net output/yr (kg) |           |           | Formulation (type & % of active ingredient (a.i.)) | % for in-country use |
|------|----------------------------------|--------------------------------|--------------------|-----------|-----------|--|----------------------|
|      |                                  |                                | Yr. 1              | Yr. 2     | Yr. 3     |  |                      |
| i.   | Tianjin Chemical Plant           | 4,000,000                      | 582,000            | 2,284,000 | 1,592,000 | 75% and 100%                                       | 55                   |
| ii.  |                                  |                                |                    |           |           |  |                      |
| iii. |                                  |                                |                    |           |           |  |                      |

3. For each of the production facilities listed above, provide the following:

| No.  | Facility               | Export information                                 |                  |         |         |   |
|------|------------------------|--|------------------|---------|---------|---|
|      |                        | Destination country(s)                             | Quantity/yr (kg) |         |         | Formulation (type and % active ingredient (a.i.)) |
|      |                        |  | Yr. 1            | Yr. 2   | Yr. 3   |   |
| i.   | Tianjin Chemical Plant | South Africa, Ethiopia, Eritrea, Namibia, Djibouti | 448,000          | 700,000 | 871,000 | 75% and 100%                                      |
| ii.  |                        |  |                  |         |         |   |
| iii. |                        |  |                  |         |         |   |

**Import**

4. Has DDT been imported into your country over the reporting period? YES  NO  (if NO, proceed to question 6.)

5. If DDT is imported please provide the following:

| Country of export | Name of manufacturer | Total net wt of import/yr for the reporting period (kg) |       |       | Formulation (type & % of a.i.) |
|-------------------|----------------------|---|-------|-------|--------------------------------|
|                   |                      | Yr. 1   | Yr. 2 | Yr. 3 |                                |
|                   |                      |   |       |       |                                |
|                   |                      |   |       |       |                                |

*Stock information*

6. Is DDT repackaged/reformulated in the country? Yes  No  (if NO, please proceed to question 8)

7. If yes, please complete the following table:

| Repackaging/reformulation agency | Description of repackaging (boxed, polythene bagged; description of labelling, etc.) | Formulation (type and % of active ingredient) | Intended end-use | Average annual amount (kg). |
|----------------------------------|--|---|------------------|-----------------------------|
|                                  |  |   |                  |                             |
|                                  |  |   |                  |                             |
|                                  |  |   |                  |                             |

8. Please provide the following information on the usable stocks of DDT in your country.

| Location | Total amount in storage (kg) | Formulation (type and % a.i.) | Managing authority of facility | Conditions of storage (e.g., storage capacity; access) |
|----------|------------------------------|-------------------------------|--------------------------------|--|
|          |                              |                               |                                |  |
|          |                              |                               |                                |  |
|          |                              |                               |                                |  |

**A.II. DDT DISPOSAL**

9. Do you have obsolete DDT stocks in the country? Yes  No

(if NO, proceed to question 13)

10. If yes, what is the total weight of obsolete DDT stock in the country (kg): 11060  
Please tick here  if amount is unknown

11. Please provide the following information on facilities where obsolete DDT is stored.

| Facility and location                                   | Total capacity of storage (kg) | Total amount (kg) of obsolete pesticides in storage at the facility | Amount (kg) and approximate age (yrs) of obsolete DDT component |
|---|--------------------------------|---|---|
| Hainan Province, Sanitation epidemic prevention station | 60                             | 60  | 60kg, 25 years  |
| Hunan Province, CDC                                     | 9,800                          | 9800  | 9800kg, over 30 years   |
| Yunnan Province, CDC                                    | 300                            | 300   | 300kg, 10 years   |
| Sichuan Province, CDC                                   | 900                            | 900   | 900kg, over 20 years  |

12. For each storage facility storing obsolete DDT listed in question 11, please complete the following on the storage conditions.

| Facility  | Storage conditions |   |                             |                      |                                       |  |
|---|--------------------|---|-----------------------------|----------------------|---------------------------------------|--|
|   | Housed or open?    | Regular inspection? (yes/no). If yes how often? | Adequate security? (yes/no) | Leaky roof? (yes/no) | DDT leaking into environment (yes/no) | Any other comment on human and environmental safety (e.g., need for repackaging) |
| Hainan Province, Sanitation epidemic prevention station | Housed             | Yes, twice per year                             | yes                         | No                   | No                                    | Need for disposal  |

|                       |        |                     |     |    |    |                   |
|-----------------------|--------|---------------------|-----|----|----|-------------------|
| Hunan Province, CDC   | Housed | No                  | yes | No | No | Need for disposal |
| Sichuan Province, CDC | Housed | Yes, twice per year | yes | No | No | Need for disposal |
| Yunnan Province, CDC  | Housed | No                  | yes | No | No | Need for disposal |

13. Which agency is directly responsible for DDT disposal? \_\_\_\_\_

14. Is DDT disposed of in-country? YES  NO

15. If the answer to question 14 is NO, is the obsolete DDT exported? YES  NO . If exported, then indicate destination and intent of export \_\_\_\_\_

16. If obsolete DDT is disposed of in-country, then please complete the following table:

| Disposal method (Electro-chemical, incineration, etc) | Facilities using method | Years method has been in use | Disposal capacity/yr (kg) | Amount disposed of/yr (kg.) | Cost of disposal (per kg) |
|---|-------------------------|------------------------------|---------------------------|-----------------------------|---------------------------|
|   |                         |                              |                           |                             |                           |
|   |                         |                              |                           |                             |                           |
|   |                         |                              |                           |                             |                           |
|   |                         |                              |                           |                             |                           |

**A.III. DDT USE**

17. What is the total amount of DDT used annually for disease vector control (kg)?

Yr 1: \_\_\_\_\_, formulation (type & % a.i.) \_\_\_\_\_  
 Yr 2: \_\_\_\_\_, formulation (type & % a.i.) \_\_\_\_\_  
 Yr 3: \_\_\_\_\_, formulation (type & % a.i.) \_\_\_\_\_

18. Please complete the following table for each disease for which DDT is used:

| Disease | Total national Population at risk of disease | Disease burden: prevalence rate (a) & mortality rate (b) |   | % total national population at risk that is covered by DDT use |     |     | Main vector species targeted                 | DDT resistance in target species (Yes, no) | Year resistance was first reported |
|---------|--|--|---|--|-----|-----|--|--|------------------------------------|
|         |  | a  | b | Yr1  | Yr2 | Yr3 |  |  |                                    |
| Malaria | 0.7 billion                                  | 0.48   |   |  |     |     | Anopheles (Cellia) minimus                   | yes  | 1995                               |
|         |  |  |   |  |     |     | Anopheles sinensis                           | yes  | 1993                               |
|         |  |  |   |  |     |     | Anopheles (Anopheles) lesteri anthropophagus |  |                                    |

19. Complete the following table for each disease for which DDT is used (Please use additional page as necessary):

| Disease | Local areas where DDT is used (e.g., district) | Population size in targeted areas | Disease transmission classification in targeted areas (stable or unstable; if stable, indicate if holo-, hyper-, meso- or hypo-endemic <sup>1</sup> ) | Coverage in targeted areas (% of houses) |     |     | Annual amount of DDT used (kg) |     |     |
|---------|--|-----------------------------------|---|--|-----|-----|--------------------------------|-----|-----|
|         |  |                                   |   | Yr1                                      | Yr2 | Yr3 | Yr1                            | Yr2 | Yr3 |
|         |  |                                   |   |  |     |     |                                |     |     |
|         |  |                                   |   |  |     |     |                                |     |     |
|         |  |                                   |   |  |     |     |                                |     |     |
|         |  |                                   |   |  |     |     |                                |     |     |
|         |  |                                   |   |  |     |     |                                |     |     |

**A.IV. REGULATION AND CONTROL:**

20. Are there laws and/or regulations governing or restricting the purchase and/or use of DDT?

YES  No . If NO, go to question 29

21. If yes, please provide complete the following table (use additional sheets if need).

| Title of relevant law or regulation on DDT | Year it was passed or enacted | List the main objectives of the law or regulation (e.g., Prohibits the use of public transport for transporting of DDT) |
|--|-------------------------------|---|
|  |                               |   |

<sup>1</sup> See instructions for definitions of endemicity.

|  |      |  |
|--|------|--|
| Measures for the Administration of Registration of Hazardous Chemicals         | 2002 | Production, use, and storage of DDT shall be registered.   |
| Measures for the Administration of Operating Licenses for Hazardous Chemicals  | 2002 | Distribution of DDT shall apply for permit.  |
| Measure on the Administration of Manufacturing Licenses of Industrial Products | 2005 | Dicofol that uses DDT as intermediate in its production is included into List needs for applying manufacturing licenses. |
|  |      |  |

22. Please indicate the major limitations with the effective enforcement of existing regulations. (Tick all that apply)

| Inadequate enforcement resources/facilities | Regulations not well understood by enforcement agencies | Inadequate number of trained personnel | Other (Please specify) |
|---|---|--|------------------------|
|   |   |  |                        |

23. Name the overall managing authority for DDT in the country \_\_\_\_\_

24. Which Agency actually authorizes the use of DDT for disease vector control purposes Ministry of Health.

25. Please clarify if the authorizing agency (check all that apply):

- is directly involved in vector control application of DDT
- performs supervisory roles
- has District offices in charge of DDT application in local areas
- trains field staff (spray operators, inspectors etc.)
- is involved in public education on safe use of pesticides

26. Please list any other agencies with specialized management roles for DDT:

| Agency | Description of role in DDT management |
|--------|---------------------------------------|
|        |                                       |
|        |                                       |
|        |                                       |
|        |                                       |
|        |                                       |
|        |                                       |
|        |                                       |

**End-use information**

27. Do local municipalities use DDT for disease vector control purposes? YES  NO

28. Are there any other agencies (e.g., private agencies, NGOs) involved in using DDT for disease vector control purposes? YES  NO . (If NO, go to question 31).

29. If the answer to question 28 is yes, please complete the following table.

| Name of agency | Areas where agency uses DDT (e.g., districts) | Population size covered by Agency | Annual amount of DDT used (kg active ingredient) | DDT use related activities carried out by agency |                                 |                 |
|----------------|---|-----------------------------------|--|--|---------------------------------|-----------------|
|                |   |                                   |  | training of sprayers (yes/no)                    | Community education/ awareness? | Other (specify) |
|                |   |                                   |  |  |                                 |                 |
|                |   |                                   |  |  |                                 |                 |

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|

30. For the agencies listed in question 29, provide the following additional information:

| Agency | DDT application budget<br>(as % of overall vector control budget) | Total personnel & person hours expended per application cycle |       |       | Annual population coverage |       |      |
|--------|---|---|-------|-------|----------------------------|-------|------|
|        |   | Yr.1  | Yr. 2 | Yr. 3 | Yr. 1                      | Yr. 2 | Yr.3 |
|        |   |   |       |       |                            |       |      |
|        |   |   |       |       |                            |       |      |
|        |   |   |       |       |                            |       |      |

31. What is the average cost per house sprayed with DDT (including labour and other operational costs)?  
 Local currency 80 RMB per family current equivalent in US\$ 10 US\$ per family

32. How would you rate the general acceptance / refusal of DDT for indoor-application by the households (please tick as appropriate)?

|                    | Provide calculated rate if available | Estimated rate<br>(if calculated rate is not available) |         |     |          |               |
|--------------------|--------------------------------------|---|---------|-----|----------|---------------|
|                    |                                      | Very Low (1)  | Low (2) | (3) | High (4) | Very high (5) |
| Refusal rate       | 30%                                  |   |         |     |          |               |
| Re-plastering rate | 40%                                  |   |         |     |          |               |

33. If the acceptability of indoor application of DDT is low, what are the reasons given for the lack of acceptance by the households (please tick all that apply)?

| Inconvenient - moving furniture etc. | Unpleasant smell of DDT | Dislike for white residues on walls | Reluctance to provide access to strangers (sprayers) | Timing of spraying inappropriate | Other (specify) |
|--------------------------------------|-------------------------|-------------------------------------|--|----------------------------------|-----------------|
| x                                    | x                       | x                                   |  |                                  |                 |

34. Is DDT application limited to certain house types or households? YES:  NO: . If yes, please indicate the house types targeted (e.g., traditional houses, western-type houses)  
traditional houses

35. What are the criteria for selecting a geographical area or community for DDT indoor spraying?  
The government will control the emergency condition of malaria by residual spraying of DDT indoor, thus degrade the density and life time of mosquitoes, aiming at cutting off spread of malaria.

36. Who determines the timing of DDT application at the local level?  
The timing of DDT application will be determined by the agency of diseases control and prevention at the local level.

37. What factors determine the timing of the DDT application cycle?  
The timing of the DDT application cycle will be mainly determined by the climate condition.

38. How many DDT application cycles are there in a year? ONE  TWO  OTHER?  
DDT application cycles will be only one in the middle area during 5-10 months, and the cycle times are two in the south area for malaria's spread all the year round.

39. How long does an application cycle take (time - in days or hrs)? 90 days

Resistance monitoring

40. What bioassay test procedure(s) is used for detecting DDT resistance?  
 Adopt differentiated dosage method recommended by WHO.

41. Please complete the following table on vector susceptibility to DDT according to WHO susceptibility test<sup>2</sup>

| Disease        | Main vector species               | Minimum mortality % | Maximum mortality % | Year last tested | Specific geographical areas associated with test, if any |
|----------------|-----------------------------------|---------------------|---------------------|------------------|--|
| malaria        | <i>Anopheles (Cellia) minimus</i> | 90                  | 100                 | 1992-1994        | Yunnan Province  |
|                | <i>Anopheles sinensis</i>         | 42.71               | 100                 | 1992-1994        | Yunnan Province  |
| encephalitis B | <i>Culex fatigans</i>             | 0                   | 53.51               | 1992-1994        | Yunnan Province  |
|                |                                   |                     |                     |                  |  |
| dengue fever   | <i>Aedes aegypti</i>              |                     |                     | 1981             | Hainan Province  |
|                | <i>Aedes albopictus</i>           |                     |                     | 1981             | Hainan Province  |
|                |                                   |                     |                     |                  |  |

42. Please provide the following information on insecticide residual efficacy according to the WHO standard bioassay test.<sup>3</sup> (If no information is available for the reporting period, please provide the most recent data.)

(a) DDT bioassay results by month; yr1

Month 1 \_\_\_\_\_  
 Month 4 \_\_\_\_\_  
 Month 8 \_\_\_\_\_  
 Month 12 \_\_\_\_\_

(b) DDT bioassay results by month; yr2

Month 1 \_\_\_\_\_  
 Month 4 \_\_\_\_\_  
 Month 8 \_\_\_\_\_  
 Month 12 \_\_\_\_\_

(c) DDT bioassay results by month; yr3

Month 1 \_\_\_\_\_  
 Month 4 \_\_\_\_\_  
 Month 8 \_\_\_\_\_  
 Month 12 \_\_\_\_\_

43. Briefly describe the surveillance mechanism(s) in the country for monitoring DDT resistance (Include the number & location of sentinel sites, if any):

No surveillance mechanism exists in China now.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

<sup>2</sup> Mortality after 24-hour holding period of mosquito specimens exposed to diagnostic concentration (4 per cent DDT) for 1 hour

<sup>3</sup> 24-hour holding period mortality of vector strains of known DDT susceptibility exposed for 1 hour to a DDT-sprayed surface (75 per cent WP)

**SECTION B: DDT ALTERNATIVES (INSECTICIDES, METHODS AND STRATEGIES)****B.1: DDT ALTERNATIVES**

44. Please complete the following tables for DDT alternatives that are in use:

| Alternative control category  | Method or chemical used                                      | Disease targeted             | Annual use (kg of active ingredient or quantity as applicable) | Target population (%) | Acceptability <sup>1</sup> | Annual budget (US\$) (and as % of vector control) | Unit cost <sup>2</sup> |
|---|--|------------------------------|--|-----------------------|----------------------------|---|------------------------|
| Biological control (e.g., Bacteria)   | No   |                              |  |                       |                            |   |                        |
|   | No   |                              |  |                       |                            |   |                        |
|   | No   |                              |  |                       |                            |   |                        |
| Chemical control & related strategies (e.g., insecticide-treated nets, pyrethroids) | mosquito net with pesticides dipped: decamethrin, Cyfluthrin | malaria                      | 4437   | 0.6                   | Accept                     | 220,000US\$                                       | 0.6 US\$               |
|   | Residual Spraying: ITN-decamethrin                           | malaria /arboviral diseases  | 10500  | 0.38                  | Accept                     |   |                        |
|   | Residual Spraying: Cyfluthrin                                | malaria /arboviral diseases  | 12000  | 0.38                  | Accept                     |   |                        |
|   | Residual Spraying: ITN-alphamethrin                          | malaria /arboviral diseases  | 15000  | 0.38                  | Accept                     |   |                        |
|   | Residual Spraying: Deltamethrin                              | malaria /arboviral diseases  | 11500  | 0.38                  | Accept                     |   |                        |
|   | Residual Spraying: phoxim                                    | malaria / arboviral diseases | 9000   | 0.38                  | Accept                     |   |                        |
| Environmental control (e.g., source reduction)                                      | Patriotic Health Campaign                                    | malaria / arboviral diseases |  |                       |                            |   |                        |
|   |  |                              |  |                       |                            |   |                        |
|   |  |                              |  |                       |                            |   |                        |
|   |  |                              |  |                       |                            |   |                        |

<sup>1</sup> End-user refusal rate (Rt) and/or use rate (Ut), indicate as appropriate <sup>2</sup> As appropriate. e.g., unit cost of ITN or cost of chemical application per house

45. Complete the following table on sources of the alternative options listed above, as applicable:

| Alternative category | Biological or chemical product used | Source (Import/local) | Formulations (as applicable) | Annual import (kg active ingredient) | Managing authority                     |
|----------------------|-------------------------------------|-----------------------|------------------------------|--------------------------------------|--|
| Biological control   |                                     |                       |                              |                                      |  |
|                      |                                     |                       |                              |                                      |  |
|                      |                                     |                       |                              |                                      |  |
| Chemical control     | alphamethrin                        | Import                | Cypermethrin                 | 50                                   | Department of health of Hubei Province |
|                      | 12.5% Responsar                     | Import                | Cyfluthrin                   | 500                                  | Department of health of Henan Province |

|  |                       |        |              |      |  |
|--|-----------------------|--------|--------------|------|--|
|  | 2.5% phosphamidon     | Local  | Cyfluthrin   |      | Department of health of Jiangsu Province |
|  | 2.5% Cyfluthrin       | Local  | Cyfluthrin   |      | Department of health of Jiangsu Province |
|  | decamethrin           | Local  | decamethrin  |      | Department of health of Yunnan Province  |
|  | Cyfluthrin            | Local  | Cyfluthrin   |      | Department of health of Yunnan Province  |
|  | alphamethrin          | Local  | alphamethrin |      | Department of health of Yunnan Province  |
|  | phoxim                | Local  | phoxim       |      | Department of health of Yunnan Province  |
|  | synthesized pyrethrin | Import | pyrethrin    | 5000 | Department of health of Guangxi Province |

46. Complete the following table on the disposal relating to the alternative options listed:

| Alternative category | Biological or chemical product used | Total national stock (kg or quantity, as applicable) | Total obsolete stock (kg or quantity, as applicable) | Disposal method used | Annual disposal cost (US\$) | Agency responsible for disposal |
|----------------------|-------------------------------------|--|--|----------------------|-----------------------------|---------------------------------|
| Biological control   |                                     |  |  |                      |                             |                                 |
|                      |                                     |  |  |                      |                             |                                 |
|                      |                                     |  |  |                      |                             |                                 |
| Chemical control     |                                     |  |  |                      |                             |                                 |
|                      |                                     |  |  |                      |                             |                                 |
|                      |                                     |  |  |                      |                             |                                 |
|                      |                                     |  |  |                      |                             |                                 |
|                      |                                     |  |  |                      |                             |                                 |

47. Provide information on vector resistance to any of the insecticides listed previously as DDT alternatives in use:

| Disease        | Vector species                    | Insecticide tolerance or resistance reported in the country (indicate region/area of country associated with report) | Year of first report |
|----------------|-----------------------------------|--|----------------------|
| malaria        | <i>Anopheles sinensis</i>         | Yunnan Province  | 1995                 |
| malaria        | <i>Anopheles (Cellia) minimus</i> | Yunnan Province  | 1995                 |
| encephalitis B | <i>Culex fatigans</i>             | Yunnan Province  | 1995                 |
|                |                                   |  |                      |

48. Complete the table on other DDT alternative(s) that have been considered for use or have been used in the country in the past but are not used any more:

| Alternative control category   | Method or product used & mode of application | Disease targeted | Reason why the use of the method/product was rejected or stopped |
|--|--|------------------|--|
| Biological control   |  |                  |  |
|  |  |                  |  |
|  |  |                  |  |
| Chemical control & related strategies (e.g., insecticide-treated nets) | mosquito net dipped with decamethrin         | malaria          | <i>Anopheles sinensis</i> has generated resistance               |
|  | mosquito net dipped with permethrin          | malaria          | <i>Anopheles sinensis</i> has generated resistance               |
|  |  |                  |  |
| Environmental control  |  |                  |  |
|  |  |                  |  |
|  |  |                  |  |

*Main vector(s) susceptibility to insecticide (DDT alternatives listed)*

49. For the alternative insecticides in use, please indicate for the targeted vector species, the minimum & maximum mortality rates using the standard (discriminating/diagnostic) insecticide concentration.

| Disease          | Vector species                    | Insecticide 1: decamethrin |       | Insecticide 2: phoxim |       | Insecticide 3. |       | Insecticide 4: |       | Insecticide 5: |       |
|------------------|-----------------------------------|----------------------------|-------|-----------------------|-------|----------------|-------|----------------|-------|----------------|-------|
|                  |                                   | Mortality                  |       | Mortality             |       | Mortality      |       | Mortality      |       | Mortality      |       |
|                  |                                   | Min %                      | Max % | Min %                 | Max % | Min %          | Max % | Min %          | Max % | Min %          | Max % |
| malaria          | <i>Anopheles sinensis</i>         | 65.31                      | 100   | 88.57                 | 100   |                |       |                |       |                |       |
|                  | <i>Anopheles (Cellia) minimus</i> | 83.12                      | 100   |                       |       |                |       |                |       |                |       |
|                  |                                   |                            |       |                       |       |                |       |                |       |                |       |
| encephalitis B   | <i>Culex fatigans</i>             | 82                         | 100   | 62.81                 | 100   |                |       |                |       |                |       |
|                  |                                   |                            |       |                       |       |                |       |                |       |                |       |
|                  |                                   |                            |       |                       |       |                |       |                |       |                |       |
|                  |                                   |                            |       |                       |       |                |       |                |       |                |       |
|                  |                                   |                            |       |                       |       |                |       |                |       |                |       |
| Year last tested |                                   | 1995                       |       | 1995                  |       |                |       |                |       |                |       |

**Insecticide residual efficacy (for each insecticide listed above)** Please provide information on insecticide residual efficacy according to the WHO bioassay test.<sup>4</sup> (If no information is available for the reporting period, please provide the most recent data.)

50. Insecticide name: \_\_\_\_\_

Please provide the following information on insecticide efficacy:

<sup>4</sup> 24-hour holding period mortality of vector strains of known susceptibility exposed for 1 hour to an insecticide sprayed surface.

(a) Insecticide bioassay results by month: yr1

Month 1 \_\_\_\_\_  
 Month 4 \_\_\_\_\_  
 Month 8 \_\_\_\_\_  
 Month 12 \_\_\_\_\_

(b) Insecticide bioassay results by month: yr2

Month 1 \_\_\_\_\_  
 Month 4 \_\_\_\_\_  
 Month 8 \_\_\_\_\_  
 Month 12 \_\_\_\_\_

(c) Insecticide bioassay results by month: yr3

Month 1 \_\_\_\_\_  
 Month 4 \_\_\_\_\_  
 Month 8 \_\_\_\_\_  
 Month 12 \_\_\_\_\_

**B.II. DISEASE MANAGEMENT STRATEGIES**

51. Is there a national vector control policy? YES  NO

52. Is the country implementing an integrated vector management (IVM) strategy? YES  NO

53. If yes, please list the component parts of the IVM for the diseases listed in this report:

| Disease | Annual budget (US\$) | Vector control component | % of overall budget | Major limitation to implementation |
|---------|----------------------|--------------------------|---------------------|------------------------------------|
|         |                      |                          |                     |                                    |
|         |                      |                          |                     |                                    |
|         |                      |                          |                     |                                    |
|         |                      |                          |                     |                                    |
|         |                      |                          |                     |                                    |
|         |                      |                          |                     |                                    |
|         |                      |                          |                     |                                    |

54. Please indicate the vector resistance management strategy employed \_\_\_\_\_  
 \_\_\_\_\_

55. Provide any information on the entomology laboratories available in country. For each laboratory, indicate if it is adequately equipped to carry out insect resistance testing and related functions. If not, please indicate (quantify if possible) the limitations faced:  
 \_\_\_\_\_  
 \_\_\_\_\_

56. Is there research into the development of locally appropriate alternative intervention options to DDT?  
 YES  NO

57. If the answer to question 56 is yes, please complete the following table

| Type of research on DDT alternative | Institution leading the research                             | Year initiated |
|-------------------------------------|--|----------------|
| Bio-pesticides                      | Institute of parasitic disease in CDC, CDC in Hubci province | 1990s          |

|                             |  |       |
|-----------------------------|--|-------|
| Decamethrin-like pesticides | Agencies for diseases control and prevention in all province | 1990s |
| Gambusia                    | Guizhou medical college                                      | 1990s |
|                             |  |       |

**SECTION C: GENERAL HUMAN AND ENVIRONMENTAL SAFETY ISSUES**

58. Has there been any insecticide incident(s) in relation to vector control with generalised human exposure &/or environmental release of INSECTICIDES in the country (e.g., road accidents, spills)? YES  NO

59. If the answer to question 58 is yes, please complete the following table:

| Incident Number | Insecticide (DDT & other) | Details of exposure or environmental release |       |                   |                                    |
|-----------------|---------------------------|--|-------|-------------------|------------------------------------|
|                 |                           | Date   | Place | Quantity released | Estimated number of people exposed |
| I               |                           |  |       |                   |                                    |
| ii              |                           |  |       |                   |                                    |
| iii             |                           |  |       |                   |                                    |
| iv              |                           |  |       |                   |                                    |

60. Please complete the following table for the incidents listed in question 59

| Incident number (Question 56) | Details of exposure or environmental release              |                        |                                    |   |
|-------------------------------|---|------------------------|------------------------------------|---|
|                               | Caused of incident (e.g., Road accident during transport) | Remedial actions taken | Agency undertaking remedial action | Safeguards employed to prevent future incidents |
| i                             |   |                        |                                    |   |
| ii                            |   |                        |                                    |   |
| iii                           |   |                        |                                    |   |
| iv                            |   |                        |                                    |   |

61. Which agency(ies) is(are) responsible for assessing the risks posed by the use of insecticides for public health?  
Ministry of Health

62. Is there a programme to raise awareness among communities and households on safety issues relating to insecticides use in disease vector control? YES  NO

63. If yes, who implements the programme and what public education method(s) are used ?

\_\_\_\_\_

\_\_\_\_\_

**SECTION D: SYSTEMS STRENGTHENING IN DISEASE VECTOR CONTROL**

64. Targets for relevant trained personnel in the national disease vector control programme (by category):

| Category of personnel  | Level of training (PhD, Master, Bachelor) | Present staffing levels (number) | Targeted staffing level |
|--|---|----------------------------------|-------------------------|
| Technical (e.g., management, planners)                         | Doctor                                    | 3                                | 10                      |
|  | Master                                    | 10                               | 30                      |
|  | Bachelor                                  | 80                               | 200                     |
| Operational (e.g., sprayers, sanitarians, mosquito collectors) |   |                                  |                         |
|  |   |                                  |                         |
|  |   |                                  |                         |
| other (please list)  |   |                                  |                         |
|  |   |                                  |                         |
|  |   |                                  |                         |

65. What is the overall budget for disease vector control 1,000,000 (US\$). Also indicate as a percentage of the national health budget 0.25%

66. What is the budget shortfall (US\$) for vector control (percentage)? Yr.1 70% Yr. 2 70% Yr. 3 70%

67. Give the proportion of the annual budget mobilized in-country 100% and externally \_\_\_\_\_

68. List the facilities in the country providing training in disease vector control.

| Training facility  | Specialization (vector biology, entomology etc) | Training level provided (degree or other) | Annual output      |
|--|---|---|--------------------|
| Institute of parasitic disease in CDC                      | vector biology                                  | Short term technical skill                |                    |
| Hunan Province, CDC  | vector biology                                  | technical skill                           |                    |
| Hunan Province, CDC  | entomology                                      | Short term technical skill                |                    |
| Jiangsu Institute of parasitic disease prevention and cure | vector biology, entomology                      | Bachelor                                  | About 25 trainees. |
| Yunnan Institute of parasitic disease prevention and cure  | vector biology, entomology                      | technical skill                           |                    |

69. Provide details on the in-service training programmes available, especially at the regional and district levels: Provincial technical trainings are provided by National CDC, and 2 or 3-day short-time trainings are conducted in provincial CDC if necessary.

70. Do formal mechanisms exist for inter-sectoral collaboration in disease vector control?

YES  NO

If the answer is YES, please complete the following table (tick as appropriate).

| Policy on inter-sectoral collaboration                              | Inter-sectoral committee/board at national level | Inter-sectoral committee at district level         | Joint Planning (indicate if national, provincial, district etc.) | Joint implementation of activities           |
|---|--|--|--|--|
| Inter-sectoral collaboration mechanism between health and education |  | Departments of health and departments of education | Plan and implement at district level.                            | Public awareness and education, organization |
|   |  |  |  |  |

71. If the answer to question 70 is NO, what are the limitations to developing such mechanisms?

A. Agriculture department utilize the most proportion of pesticide, however, nowadays, disease prevention and control sector and agriculture sector lack the effective cooperative mechanism and information exchange mechanism in the field of pesticide application.

B. The economic development level in different areas are not equal, lack effective management measures for the purchase and utilization of pesticide.

72. What are the limitations to the monitoring and evaluation of vector control programmes?

A. Lack of human resources. Disease vector control monitoring and evaluation are related to knowledge and skills in the field of entomology (mainly vector biology) and toxicology. Currently, we lack of human resources in the field of vector biology and toxicology within CDC system.

B. The funding for disease vector control is not enough. Disease vector drug resistance monitoring and evaluation system is not established, the work targeted at active monitoring and evaluation of pesticide currently used for analyzing disease vector drug resistance are not fully carried out.

C. The information exchange and cooperation with pesticide producer and their supervisor are insufficient. Lack effective communication and supervision mechanism for the pesticide effect and marketing channels.

and how can they be best overcome?

A. Strengthen the knowledge training for the current professionals in the field of vector biology and toxicology, hire more talents in this field.

B. Through multiple ways such as increase the government input and introduce more projects to carry out systematic disease vector drug resistance monitoring, gradually form the perfect disease vector monitoring and evaluation system.

C. Strengthen the communication and cooperation with pesticide producers and governing dept. of pesticide producers.

73. Please provide any other general information relevant to your country's situation with regards to vector borne diseases and their control; \_\_\_\_\_