



CENTRE PASTEUR  
DU CAMEROUN

# SOP n°2

## Collection of samples



Food and Agriculture Organization  
of the United Nations



World Health  
Organization



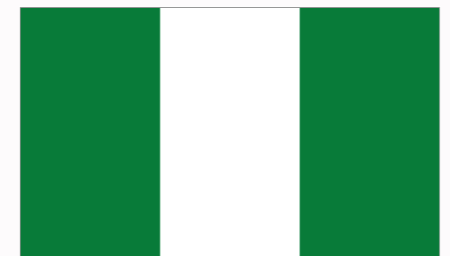
Benin



Cameroon




Mali



Nigeria

# Source and Scope

	Standard Operating Procedure	TDS SOP 02
SOP Valid from:	Collection of samples	

***SCOPE*** : *this procedure is a generic SOP applicable for the collection of food samples for TDS.*

*It is intended to be used (possibly after adequate adaptations) by each national TDS team*



# Objective

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*To be a generic procedure for the collection of samples*



# Definitions (1/4)

WHAT?

**FOOD SHOPPING LIST** : detailed list of food products to be purchased by food item that will form a representative sample of the total diet according to the **RTDS FOOD LIST**.

*The shopping list should indicate when appropriate :*

- *Type / Variety / Brand*
- *Number of items / Amount in grams*
- *Places*
- *Frequency / Seasonality*



# Definitions (2/4)

## ASSIGNMENT SHEET :

### ● *Shopping plan calendar*

1. *Dates to go*

WHEN?

2. *Places to go (city and market or shop)*

WHERE?

3. *Staff involved*

WHO?

### ● *Food preparation plan*

1. *Dates*

2. *Which kitchen*

3. *Staff involved*



# Definitions (3/4)

## ***COLLECTION REPORT (filled by purchasers) :***

- 1. Date / location / retail type***
- 2. Food identification (food group, food sub-group and food item)***
- 3. Product origine / source / brand / batch number / expiry date***
- 4. Subsample size***
- 5. Subsample packaging and condition when purchased***
- 6. Packaging /conditioning for transport***
- 7. Cost of the subsample***



# Definitions (4/4)

## **CONTINGENCY SAMPLES :**

- *Extra samples acquired saved for any future loss or event*

## **PACKING LIST :**

- *Template for writing a general description of the content of each box or thermal bag*

## **SPECIAL NOTE :**

- *Instructions for corrective actions etc...*



# Responsibilities

## *Job description of :*

- *Purchasers*
- *Coordinators*

## *Should be noted*

- Identify required training*
- Compose list of trained & allowed personnel*
- See **SOP n°1** for material to take while shopping*





# PROCEDURE

## Collection report

*The collection report (see appendix n°1) should contain :*

- Name, title and signature of the responsible purchaser*
- Date, time and place of sampling*
- Date, location, market, lieu and retail type*
- Reason for sampling (if applicable)*
- Any deviation from sampling instructions must be registered*
- Date of dispatch to kitchen laboratory*
- Name and address of kitchen laboratory*
- Registering of corrective actions*



# PROCEDURE

## Collection report

*Each food item bought is described in the collection report:*

- Food identification (see codification in SOP n°1)*
- Origin, importer, producer, wholesaler, retailer...*
- Product type, brand and batch number if available*
- Expiry date if available*
- Sampling method (random/lot or random/accessible units)*
- Size, number and code number of field sample*
- Real cost of each item*
- Packaging when purchased / for transport*
- Any other relevant information*



# PROCEDURE

## Corrective actions

### *Acceptance criteria for deviations / SHOPPING LIST:*

- Collected samples should be representative of the food supply in the area investigated*
- Different sample sizes, brands, prices etc can be purchased if budget and study proper prosecution are not jeopardized*
- If a food item of a certain origin or kind is not available, choose an alternative product:*
  - *consistent with the behavior of the average consumer*
  - *widely available*
  - *with the same characteristics*



# PROCEDURE

## Conditioning, codification and labelling

### *Conditioning :*

- *Take time, fill in the PACKING LIST*
- *Place a label on each food item*
- *Each food item is placed in a plastic bag and inside boxes*
- *Plastic bags should be adequate*
- *Each box is labelled with a number / total number of boxes*
- *PACKING LIST, SHOPPING LIST & COLLECTION REPORT should be inside box n°1 together with shopping receipts*
- *Make sure that food items are very well wrapped*



# PROCEDURE

## Conditioning, codification and labelling

### *Conditioning :*

- *Avoid cross contamination during conditioning*
- *If more boxes are needed, use cardboard boxes*
- *Place harder items around the edge of box and pack softer food items in the middle*
- *Use newspaper to fill the boxes and prevent food items from rattling. Mark « FRAGILE » and « FOOD » on boxes*



# PROCEDURE

## Conditioning, codification and labelling

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*Codification and labelling :*


*See SOP n°1*



# PROCEDURE

## Transportation from the markets to kitchen labs

***Time [purchase – delivery] as short as possible :***

- ***6 hours in cool climate recommended and otherwise :***
- ❑ ***Refrigerated transport, ice boxes and coolants or dry ice***
- ❑ ***Transport frozen food at  $-20^{\circ}\text{C} \Rightarrow +4^{\circ}\text{C}$***
- ❑ ***Transport perishable food at  $+2^{\circ}\text{C} \Rightarrow +4^{\circ}\text{C}$***
- ❑ ***Transport non-perishable food at  $+20^{\circ}\text{C} \Rightarrow +25^{\circ}\text{C}$***
- ❑ ***Use a temperature logger with sensor*** 
- ❑ ***Inform kitchen lab staff when collecting and shipping***
- ❑ ***Avoid cross contamination during transport***
- ❑ ***Avoid local sources of environmental contamination***



# FOR MORE INFORMATION

*For more information, please contact the Scientific Committee Secretariat*

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***THANK YOU FOR YOUR CONTRIBUTIONS!***





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# SOP n°3

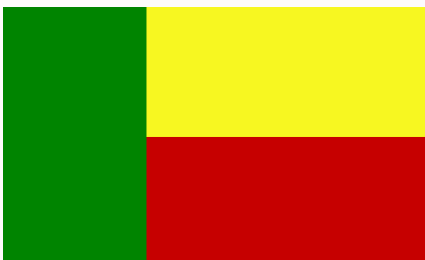
## Reception of samples



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of the United Nations



World Health  
Organization



Benin



Cameroon




Mali



Nigeria

# Source and Scope

	Standard Operating Procedure	MODEL SOP 03
SOP Valid from:	Reception of individual samples (at kitchen laboratory)	

***SCOPE*** : *this procedure is a generic SOP applicable for the reception of food samples for TDS.*

*It is intended to be used (possibly after adequate adaptations) by each national TDS team*



# Objective

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*To be a generic procedure for the reception of samples*



# Definitions (1/3)

WHAT?

**FOOD SHOPPING LIST** : detailed list of food products to be purchased by food item that will form a representative sample of the total diet according to the **RTDS FOOD LIST**.

*The shopping list should indicate when appropriate :*

- *Type / Variety / Brand*
- *Number of items / Amount in grams*
- *Places*
- *Frequency / Seasonality*



# Definitions (2/3)

## ASSIGNMENT SHEET :

### ● *Shopping plan calendar*

1. *Dates to go*

WHEN?

2. *Places to go (city and market or shop)*

WHERE?

3. *Staff involved*

WHO?

### ● *Food preparation plan*

1. *Dates*

2. *Which kitchen*

3. *Staff involved*



# Definitions (3/3)

## ***COLLECTION REPORT (filled by purchasers) :***

- 1. Date / location / retail type***
- 2. Food identification (food group, food sub-group and food item)***
- 3. Product origine / source / brand / batch number / expiry date***
- 4. Subsample size***
- 5. Subsample packaging and condition when purchased***
- 6. Packaging /conditioning for transport***
- 7. Cost of the subsample***



# Responsibilities

## *Job description of :*

- *Purchasers*
- *Kitchen lab staff*
- *Coordinators*

## *Should be noted*

- Training mandatory*
- Compose list of trained & allowed personnel*





# PROCEDURE

## Reception of samples

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*Food items arrive in bags + boxes :*

- *If size and condition of packagings allow, these can be kept*
- *Food items are wrapped individually. In case of non-compliance, they should be re-ordered*
- *The **SHOPPING LIST, PACKING LIST & COLLECTION REPORT** as well as shopping receipts are located in box n°1*



# PROCEDURE

## Checking for compliance

*Check temperature and other acceptance criteria :*

- *Frozen food should arrive frozen, perishable food should arrive fresh, non perishable products should arrive at room temperature*
- *Each food item is checked against **COLLECTION REPORT***
- *The **SHOPPING LIST**, is checked against the **COLLECTION REPORT***
- *Sensory analysis / edibility criteria*

*In case of non-compliance => re-order*



# PROCEDURE

## Records

*Entrance and disposal of food items (appendix n°4) and the description of each food items (appendix n°2) are recorded*

- Reception date*
- Identification code number of sample*
- Sample weight (ex : 4 X 100g)*
- Comments/Observations*
- Storage conditions (ex: 4°C)*
- Preparation date / preparation date*
- Signature of responsible staff for sensory analysis/record*



# PROCEDURE

## Storage

*Food samples storage areas are recorded in appendix n°3*

- *No storage outside of designated areas*
- *Keep all storage areas clean, dry and well ventilated*
- *Check temperature on a regular basis*
- *Do not remove labels of commercially processed food*
- *Some substances or food types require specific storage conditions ([appendix n°1](#))*



# PROCEDURE

## Storage

- *In the absence of information provided by supplier, non perishable food is stored at: 10=>25°C*
- *Perishable food should be prepared within 48h after reception and freezing should be avoided*
- *Frozen samples are stored at -18°C or colder and should be thawed in a refrigerator*
- *Common household storage practices should be kept in mind*
- *Label bags with waterproof pen*
- *Stored samples conditioning material should be inert*



# PROCEDURE

## Stockage

- *Improper storage conditions may distort TDS results, either by causing loss of chemical substance, or change in the final food composition*
- *Frozen and perishable food may cause lack of free space in freezers and refrigerators => to be prepared asap*
- *Dispose of samples if the expiry date is reached or if samples show inedible characteristics*



# PROCEDURE

## Storage (*dry food*)

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- *15 cm from floor and walls*
- *Away from direct sunlight*
- *Store food in durable containers that cannot be damaged by water / pests*
- *Set temperature 10 - 25°C, if possible*
- *Maintain humidity levels 50 - 65%*



# PROCEDURE

## Storage (*frozen food*)

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- *-18°C or colder*
- *Defrost if necessary find available racks and shelves and register space for samples*
- *Do not overload freezers*
- *Place food in freezers as soon as inspected*
- *No hot food placed in freezers*
- *Make sure proper air circulation is effective*
- *Keep the freezer closed as much as possible*





# PROCEDURE

## Storage (*refrigerated food*)

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- *+4°C or colder*
- *Place a thermometer on top shelf and near the door*
- *Store raw food below cooked/ready to eat food*
- *Do not use foil on shelves (air circulation)*
- *No hot food placed in refrigerators*
- *Cover food properly (avoid cross contamination)*
- *Keep refrigerators closed as much as possible*



# FOR MORE INFORMATION

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# SOP n°4

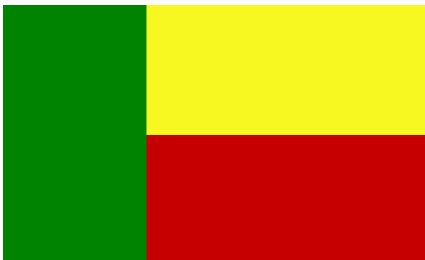
## Processing of samples



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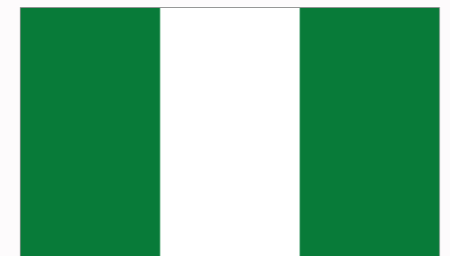
Benin



Cameroon




Mali



Nigeria

# Source and Scope

	Standard Operating Procedure	TDS SOP 04
SOP Valid from:	Sample preparation (at kitchen laboratory)	

***SCOPE*** : *this procedure is a generic SOP applicable for the processing of food samples for TDS.*

*It is intended to be used (possibly after adequate adaptations) by each national TDS team*



# Objective

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*To be a generic procedure for the preparation/processing of samples at kitchen laboratory level.*



# Vocabulary

- **Composite** : sample consisting of 12 subsamples of equal weight
- **Individual composite** : sample consisting of 12 subsamples each of the same food subgroup (level 2 of RTDS classification)
- **Subsample** : sampled unit, defined by its intrinsic nature, origin, place of purchase and preparation process.



# Vocabulary

- **National sample** : analyzed only once (for the whole country) by time-period investigated.
- **Local sample** : at least two composites need to be analyzed (one for each location of interest), from the assumption of significant differences in contamination level between the selected locations
- **Local sample by default** : justification requested to consider a sample as “national”





# Responsibilities

*Job description of :*

- *Kitchen lab staff*
- *Coordinators*

*Should be noted*

- Training mandatory*
- Compose list of trained & allowed personnel*



# PROCEDURE

## Sample preparation and culinary operations

### *General recommendations :*

- *Highly perishable food targeted with priority*
- *Inedible parts removed before or after cooking according to consumers usual behaviour*
- *Food should be prepared as reported in sampling plan and according to reference recipes*
- *Reflect consumer habits including cooking method and cooking time.*
- *Distilled water is used for boiling and salt and fat are analyzed individually*
- *Sauces, seasoning and spices are not added to food*



# PROCEDURE

## Sample preparation and culinary operations

### *Materials :*

- *Kitchen utensils used for preparing samples should be a source of contaminants.*
- *However, a migration study will try to characterize the contribution of traditional kitchen utensils to the dietary exposure of populations*
- ❑ *List of kitchen utensils*
- ❑ *Liste of homogenising equipment*
- ❑ *Recipients for TDS samples*



# PROCEDURE

## Preparation of samples and culinary operations

*Prepare each TDS sample as described in appendix n°1*

- *Record while preparing samples in appendix n°1 any relevant information :*
  1. *Date, weight before and after each culinary process*
  2. *Cooking method*
  3. *Type of water (distilled water)*
  4. *Comments (absence of salt, oil...)*
  5. *Name and signature*
- *Check if recorded values/calculations are correct*
- *One composite sample of water (12 subsamples)*



# PROCEDURE

## Pooling, homogenising

- *100g minimum of the edible fraction of each of the 12 « prepared as consumed » subsamples should be added to a 2L HDPE container to form the TDS composite sample*
- *The TDS sample should be thoroughly homogenised*
- *Visual inspection for homogeneity of samples*
- *Special attention should be paid to the list of containers which may be modified if necessary*



# PROCEDURE

## Division into analytical units

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- *At least 2 X 100g (analytical sample + reserve sample) are taken from homogeneous TDS pooled sample. If 10 analysis are requested, 11X 100g will be needed.*
- *Transport to laboratories : frozen (-20°C) iceboxes+dry ice*
- *The analytical plan can be found in the following Excel file:*

**RTDS ANALYTICAL PLAN**



# PROCEDURE

## Storage of samples

---

- *Preserved at  $-20^{\circ}\text{C}$  or below until delivery to the analytical laboratories.*
- *Record in Appendix n°2 permet d'enregistrer **where** and **where** pooled samples are stored*
- *When portions are withdrawn from storage, they should be rehomogenised if needed or tested for homogeneity*



# PROCEDURE

## Cleaning

### *Kitchen utensils*

- *Following common household practices*

### *Laboratory utensils*

1. *Pre-clean with paper towels*
2. *Clean using appropriate laboratory scale detergent (Deconex...) and rinse with tap water*
3. *Rinse with distilled water*
4. *If manually cleaned, finally rinse with ethanol*
5. *The equipment should be dried*

*Other cleaning procedures should be evaluated beforehand*





# PROCEDURE

## Disposal of samples

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*If samples are inedible or spoiled*

- **Waste**

*Leftovers of prepared TDS samples*

*(once pooled samples are frozen and stored)*

- **Waste**

***Attention : do not dispose of frozen samples before the end of the study/publication of results***



# FOR MORE INFORMATION

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