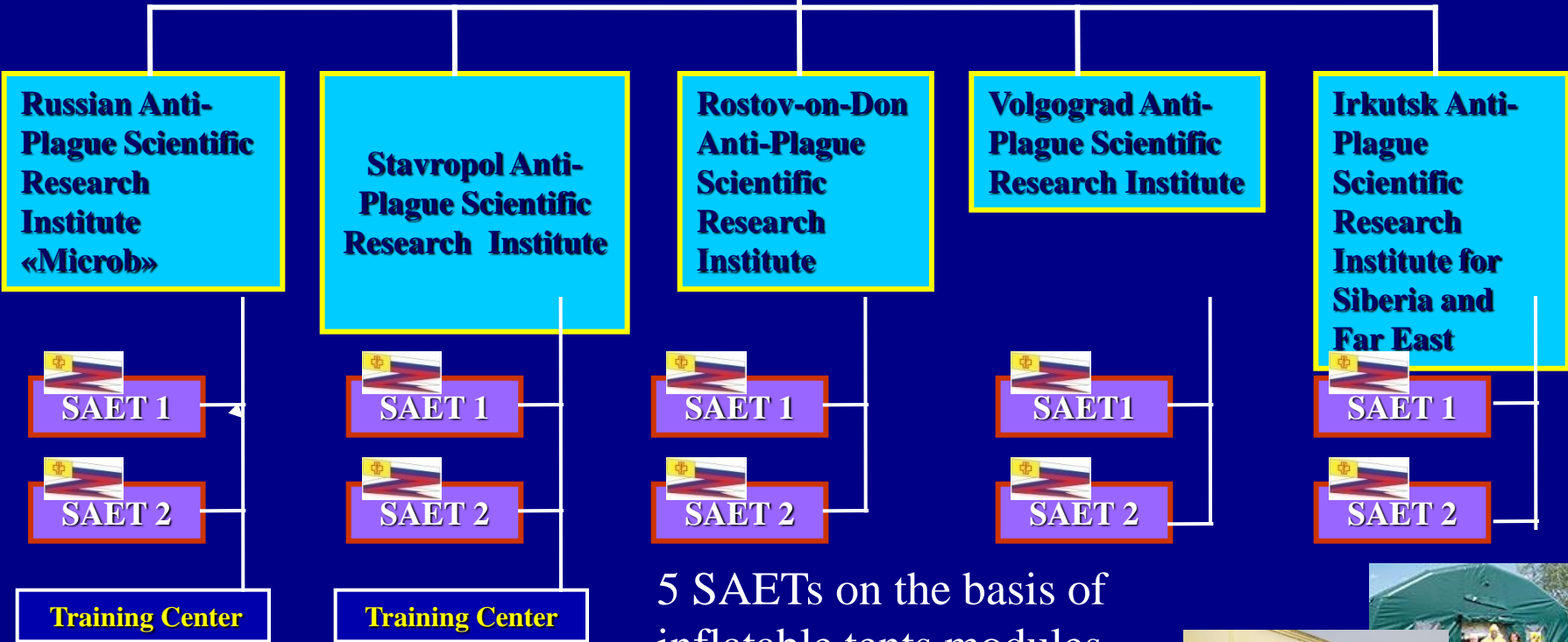


Establishing Mobile Biomedical Units Under the  
BWC: A Multipurpose Capability to Strengthen  
Collective Security Under the Convention and  
Pursue its Humanitarian Mandate



# Specialized Anti-Epidemic Teams (SAET) of the Russian Federal Service for Surveillance on Consumer Rights Protection and Human Well-being (Rospotrebnadzor)

**ROSPOTREBNADZOR**



5 SAETs on the basis of inflatable tents modules and 5 SAETs with truck based mobile labs





## **SAET designed to operate at**

public health emergency situation of sanitary and epidemiological nature that occurs both spontaneously and as a consequence of natural and man-made disasters, social conflicts, terrorist acts with use of pathogenic biological agents.



# SAET concept

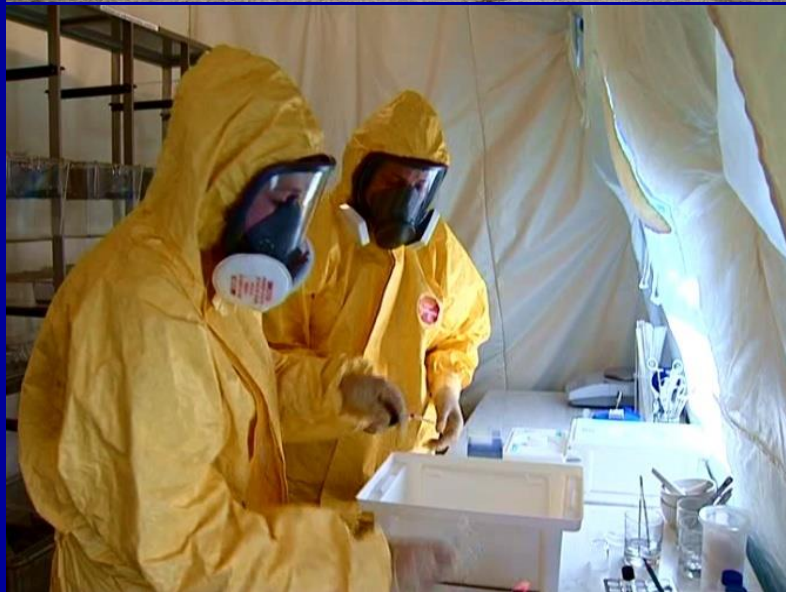
SAET is the mobile formation for an emergency response that:

- operates autonomously
- is self-contained and self-sustained
- equipped with modern laboratory capabilities
- deploys advanced diagnostic and information technologies
- has variable composition
- has highly qualified personnel
- is able to prevent, detect and response to sanitary-epidemiological emergencies.





# Basic principles of SAET operation



- mobility
- self-sustainability
- multitasking
- high technological effectiveness
- biological safety
- modularity
- multifunctional training of personnel

# SAET structure equipped with truck-based mobile laboratories

Indication lab (IL)



Sanitary -hygienic Lab (SHL)



Especially Dangerous Pathogens Lab (EDPL)



Bacteriological Laboratory (BL)



HQ Module (HQM)



Bacteriological Testing Support Unit (BTSU)



Transportation Unit

Household Module (inflatable framed tents)

# SAET Organizational Structure and Staff

1.	Head of SAET (epidemiologist)	1
2.	Assistant to the Head of SAET (logistics)	1
3.	<p>Epidemiological Division:</p> <ul style="list-style-type: none"> <li>- Head of Department (epidemiologist), Deputy Head of SAET</li> <li>- epidemiologist</li> <li>- entomologist (zoologist)</li> <li>- infectious disease physician</li> <li>- general hygiene specialist</li> </ul>	<p>1</p> <p>2</p> <p>1</p> <p>1</p> <p>1</p>
4.	<p>Laboratory facilities:</p> <p>Head of laboratory facilities: (bacteriologist)</p> <p>1. Indication laboratory (IL):</p> <ul style="list-style-type: none"> <li>- bacteriologist – responsible for the IL</li> <li>- bacteriologist</li> <li>- virologist</li> <li>- laboratory assistant with disinfection duties</li> </ul> <p>2. Especially Dangerous Pathogens Lab (EDPL)</p> <ul style="list-style-type: none"> <li>- bacteriologist – responsible for the EDPL</li> <li>- bacteriologist</li> <li>- laboratory assistant with disinfection duties</li> </ul>	<p>1</p> <p>1</p> <p>1</p> <p>2</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>

## SAET Organizational Structure and Staff (continued)

4.	Laboratory facilities (continued): 3. Bacteriological laboratory (BL): - bacteriologist – responsible for the BL - bacteriologist - laboratory assistant with disinfection duties 4. Sanitary -hygienic Lab (SHL) - bacteriologist – responsible for the laboratory - bacteriologist - chemist (toxicologist) - laboratory assistant with disinfection duties 5. Bacteriological Testing Support Unit (BTSU): - bacteriologist – responsible for the (BTSU) - laboratory assistant with disinfection duties - laboratory assistant responsible for autoclaving	1 1 1 1 1 1 1 1 1 1 1 1
5.	6. Engineering and Household Division: - engineer (autoclaving and electricity) - engineer (electricity and software ) - driver (automobile mechanic and electrician duties) - driver (automobile mechanic and disinfection duties)	1 1 3 3
6.	TOTAL:	35



# Estimated cost of SAET on the basis of inflatable framed tents

№	Name of property, equipment	Cost, USD in thousands (rounded)
1.	<b>Tents (1 headquarter tent, 5 laboratories, 8 accommodation and household support tents), including air-conditioning system, heating, lighting, folding furniture and utility-type equipment.</b>	<b>180</b>
2.	<b>Laboratory equipment, office appliances, communications facilities</b>	<b>444</b>
3.	<b>Transport (8 automobiles in accordance with the table of equipment)</b>	<b>227</b>
4.	<b>Diesel electric generators (2)</b>	<b>18</b>
5.	<b>Uniform and working clothes</b>	<b>19</b>
6.	<b>Household goods</b>	<b>15</b>
	<b>TOTAL:</b>	<b>903</b>

## **Estimated cost of SAET with truck-based mobile laboratories**

	<b>Name of property, equipment</b>	<b>Cost, USD in thousands (rounded)</b>
<b>1.</b>	<b>SAET mobile package (3 KamAZ trucks + 3 special auto train, including all life-support systems and nondetachable laboratory equipment)</b>	<b>1,879</b>
<b>2.</b>	<b>Detachable analytical laboratory equipment</b>	<b>515</b>
<b>3.</b>	<b>Inflatable tents (residential and logistics, 8 pcs), including air-conditioning system, heating, lighting, folding furniture and utility-type equipment.</b>	<b>106</b>
<b>4.</b>	<b>Automobile transport (8 units in accordance with the basic list of equipment)</b>	<b>227</b>
<b>5.</b>	<b>Diesel electric generators (2 pcs)</b>	<b>18</b>
<b>6.</b>	<b>Uniform and working clothes</b>	<b>19</b>
<b>7.</b>	<b>Houseold goods</b>	<b>15</b>
	<b>TOTAL:</b>	<b>2,779</b>

## **Estimated annual cost for SAET's maintenance in constant preparedness to respond to emergency situations of sanitary and epidemiological nature**

<b>Ser. №</b>	<b>Cost item</b>	<b>Cost, USD in thousands (rounded)</b>
<b>1.</b>	<b>Replenishment of household items and equipment</b>	<b>8</b>
<b>2.</b>	<b>Maintenance of stock of diagnostic products , test systems, labware, personal protective equipment and other expendable supplies</b>	<b>53</b>
<b>3.</b>	<b>Expenditures for satellite and other communications</b>	<b>0,7</b>
<b>4.</b>	<b>Expenditures for maintenance of SAET automobiles, life-support systems of SAET mobile complex, laboratory equipment</b>	<b>11</b>
	<b>TOTAL:</b>	<b>72</b>

# Projected costs of delivering inflatable tents based SAET to the site of a public health emergency and its self-sustained operation for 2 weeks

1. **Air shipping costs up to a distance of 5,000 km to the emergency site and return (6 flights of IL-76 aircraft. Aviation fuel cost is 200,000 USD.** (based on aviation fuel cost of 530 USD per ton, fuel consumption is at 10 tons per hour)
  2. **Staff health and life insurance (35 persons) – 14,000 USD (409 USD per 1 person)**
  3. **Per diems (35 persons) - 23,000 USD (50 USD per person per day)**
  4. **Automotive fuel - warm period — 2300 USD (4368 liters); cold period 5000 USD (9017 liters) (based on the cost of fuel of 0,5 USD/liter)**
  5. **Test systems, expendable laboratory kits etc. – from 15150 USD to 53000 USD depending on the objectives and scope of laboratory studies**
- TOTAL:** cost of delivery of one SAET with inflatable tent based modules by air to a distance up to 5,000 km and return and its self-sustained operation in the emergency zone for 14 days - **296,000 USD**

# **Projected costs of delivering truck-based SAET to the site of a public health emergency and its self-sustained operation for 2 weeks**

- 1. Air shipping costs up to a distance of 5,000 km to the emergency site and return (10 flights of IL-76 aircraft. Aviation fuel cost is 336,000 USD (based on aviation fuel cost of 530 USD per ton).**
- 2. Staff health and life insurance (35 persons) – 14,000 USD (409 USD per 1 person)**
- 3. Per diems (35 persons) - 23,000 USD (50 USD per person per day)**
- 4. Fuel - warm period — 8000 USD (14,280 liters), cold period – 9400 USD (17,236 liters), based on the cost of fuel of 0,5 USD/liter**
- 5. Test systems, expendable laboratory kits etc. – from 15,150 USD to 53,000 USD depending on the objectives and scope of laboratory studies**

**TOTAL:** cost of delivery of one SAET with truck based modules by air for distances up to 5,000 km and return and its self-sustained operation in the emergency zone for 14 days **up to 437,000 USD.**

## **Projected costs of delivering SAET with 2 truck based labs and their personnel to the public health emergency site and their self-sustained operation for 2 weeks**

- 1. Air shipping costs up to a distance of 5,000 km to the emergency site and return (2 flights of IL-76. Aviation fuel cost is 67,000 USD (based on aviation fuel cost of 530 USD per ton).**
- 2. Staff health and life insurance (10 persons) – 4010 USD (409 USD per 1 person)**
- 3. Per diems (10 persons) - 6700 USD (50 USD per person per day)**
- 4. Fuel: up to 2400 USD (4,536 liters), based on the cost of fuel of 0,5 USD/liter**
- 5. Test systems, expendable laboratory kits etc. – depending on the objectives and scope of laboratory studies: from 4500 USD to 22700 USD.**

**TOTAL:** cost of delivery of two truck based SAET labs and their personnel to a distance of up to 5,000 km and their self -sustained operation for 2 weeks is **up to 103,000 USD.**

## Training of SAET staff

- All SAET specialists (bacteriologists, virologists, epidemiologists, laboratory assistants, engineers) receive special training on essentials of biosafety procedures for work with pathogens of risk groups III and IV
- SAET specialists take advanced training courses on working in public health emergency situations (training centers operate at Rospotrebnadzor'd Russian Anti-Plague Scientific Research Institute «Microbe» and Stavropol Anti-Plague Scientific Research Institute)
- SAET specialists undergo periodical training courses relevant to their primary specialization (epidemiology, bacteriology, laboratory science) every 5 years (in accordance with existing national requirements and standards)
- Field training exercises of SAET are conducted twice a year involving full deployment of modules and labs and working on training mission including epidemiology and laboratory diagnostics



# SAET field training exercises





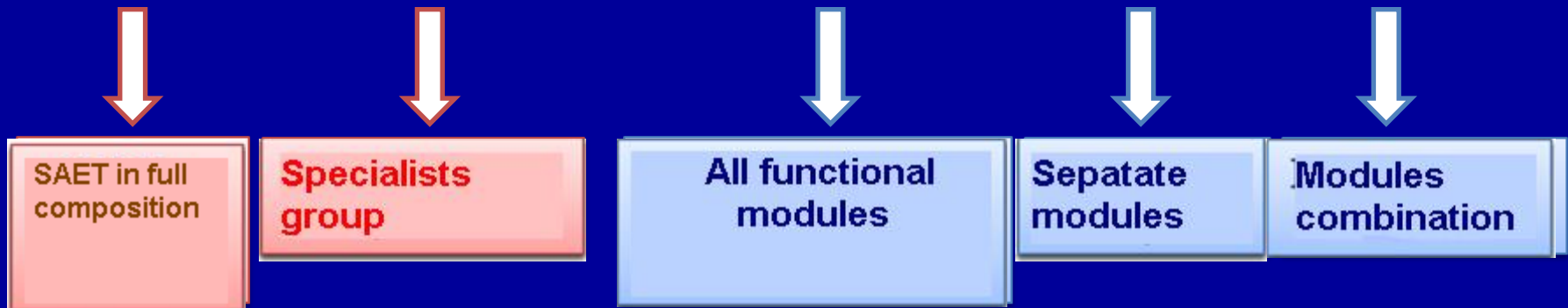


# SAET deployment tactics

Depending of the situation analysis and taking into account experience in selecting operationally optimal structural and functional, instrumental, methodological organization SAET deployment tactics may be based on flexible combinations of staff and modules (labs):

**SAET staff**

**SAET Modules and Labs**





# SAET deployment tactics

**At full capacity: all staff,  
all functional modules**

- Epidemic manifestations of infectious diseases
- Natural disaster
- Humanitarian disaster in social conflict areas
- Mass gatherings and large-scale international events

*Depending on scale and other features of an event*





# SAET deployment tactics

## Limited capacity

*(Group of Specialists,  
individual modules or their  
combinations)*

- Outbreaks of diseases unverified at the level of the local health service
- Local outbreaks of dangerous infectious diseases with environmental contamination and insufficient capacity of the local health service for their verification and elimination
- Bioterrorism acts

