Joint Appraisal Update report 2017

Country	Uzbekistan
Full Joint Appraisal or Joint Appraisal update	Joint Appraisal update
Date and location of Joint Appraisal meeting	6-9 June 2017, Copenhagen
Participants / affiliation[1]	Dr. Dilorom Tursunova National EPI Manager, Dr. Nasiba Toirova, Province EPI Manager Dr. Kamola Safaeva, NPO on VPD, WHO CO Dr. Fakhriddin Nizamov, NPO Health, UNICEF CO WHO EURO UNICEF Regional Office The World Bank HQ The Sabin Institute CDC Gavi Secretariat
Reporting period	2016
Fiscal period[2]	1 Jan – 31 Dec 2016
Comprehensive Multi Year Plan (cMYP) duration	2017-2021

1. SUMMARY OF RENEWAL AND EXTENSION REQUESTS

1.1. New and Underused Vaccines Support (NVS) renewal extension request(s)

Type of support (routine or campaign)	*Vaccine*	*End year of support*	*Year of requested support*	*Target (population to be vaccinated)*	*Indicative amount to be paid by country*	*Indicative amount to be paid by Gavi*
Routine	IPV	2018	2018	697,269	US$ 0	US$ 1,494,000
Routine	PCV 13	2019	2018	718,834	US$ 4,504,500	US$ 3,686,500
Routine	Rotavirus	2018	2018	718,834	US$ 2,457,000	US$ 503,500

1.2. Health System Strengthening (HSS) renewal request

Total amount of HSS grant	US$ 17,218,247.70
Duration of HSS grant	2016- 2020 (late start in 2017)
Year / period for which the HSS renewal (next tranche) is requested	2nd year Tranche for WHO portion only as per plans and grant agreement
Amount of HSS renewal request (next tranche)	US$ 714,444

[1] If taking too much space, the list of participants may also be provided as an annex.

[2] If the country reporting period deviates from the fiscal period, please provide a short explanation.

2. CHANGES IN COUNTRY CONTEXT SINCE LAST JOINT APPRAISAL

On 2 September 2016 The President of Uzbekistan Islam Karimov died and on December 2016, the new President, Mr. Mirziyoyev, was elected. The new President initiated a series of reforms in social, economic and public administration sectors. He also initiated new dialogue with the international and donor communities, which led to the attraction of the new investments into the social and economic sectors of the country. Uzbekistan is also going through reforms that are guided by an action plan designed to develop 5 key areas between 2017 and 2021. The document is aimed at improving the efficiency of these reforms, creating the right conditions for full and accelerated development, and implementing areas of high priority for modernizing and liberalizing the country in all spheres of life. In line with the mentioned National Action Plan, key positions in the government have been filled with new appointees. These include the Ministries of Health and Finance. Subsequently, these ministries have now initiated reforms in the healthcare sector, focusing on optimizing infrastructure and primary health care to create efficiencies and reduce public sector spending. Unfortunately, there is little information available in terms of how these efficiencies will be implemented apart from the downsizing the number of health facilities. The optimization process impacted the HSS plans in terms of cold chain equipment, staff training, and other sub-national level activities. Although official documents outlining the concept of a new round of reforms were issued on 29 March 2017, at the time of the JA process there was no clarity as to which of the PHC points will be closed and which will remain open. These delays will impact preparation of the CCEOP deployment plan, which requires specific information about geographical locations of installation sites as well as HSS investment where there is infrastructure investments.

Uzbekistan has been eligible for Gavi funding since 2000 and received both vaccines/injection supplies and vaccine introduction grants. It currently receives support for Hib containing pentavalent (2009-2016), rotavirus (2014-2016), IPV (as included in the Polio End Game strategy), and PCV (introduced in November 2015) vaccines, and has been approved for HPV vaccine introduction. The country also have been approved for HSS in early 2014 and, based on FMA outcomes, funding is disbursed to WHO and UNICEF Gavi Partners.

The country successfully introduced Rotavirus (2014) and PCV vaccines (2015). The HPV vaccine was to be introduced in 2015 however the government preferred to postpone the introduction to 2017. It must be noted that even by the end of 2016, the country does not have adequate storage capacity, particularly at the central level to manage all new vaccines. The new HSS grant contains a substantial cold chain improvement investment (about 4,5 million USD) to upgrade the cold chain, but since the HSS fund disbursement was delayed, the government requested that the HPV vaccine introduction be further postponed until late 2017. This request was approved in the October 2015 HLRP review.

Uzbekistan immunization programme still suffers from inadequate programmatic sustainability and face major systemic problems in the areas of programme management capacities, quality of immunization services, supply chain, surveillance, and decision-making. One of the bottlenecks identified during the latest UN conducted surveys is the availability and use of data. Another urgent requirement for the country is an increased political commitment to immunization to sustain immunization achievements and fulfil upcoming co-financing requirements. The majority of bottlenecks are caused by the fact that budgeting doesn't cover the operational activities of NIP, including supportive supervision and trainings of healthcare professionals or other qualified staff involved in the immunization. These activities traditionally were financed by EPI partners and currently are covered mostly by the Gavi Health System Strengthening grant.

An agreement was reached creating a compulsory 25% buffer when allocating funds for EPI vaccine procurement following Parliamentary hearings on our observations from the Children's Rights monitoring that took place in December 2016.

Under the framework of PEF TCA activities in 2016, UNICEF assessed the country's eligibility for subscription to the Vaccine Independence Initiative (VII). The assessment concluded that, given previous cash flow timing issues, accessing the VII credit line might help the country to ensure timely vaccine procurement (and thus reducing risk of stock outs). Subsequently, the VII subscription process was successfully completed by end of Q2 2017(VII Plan developed and submitted to UNICEF by the

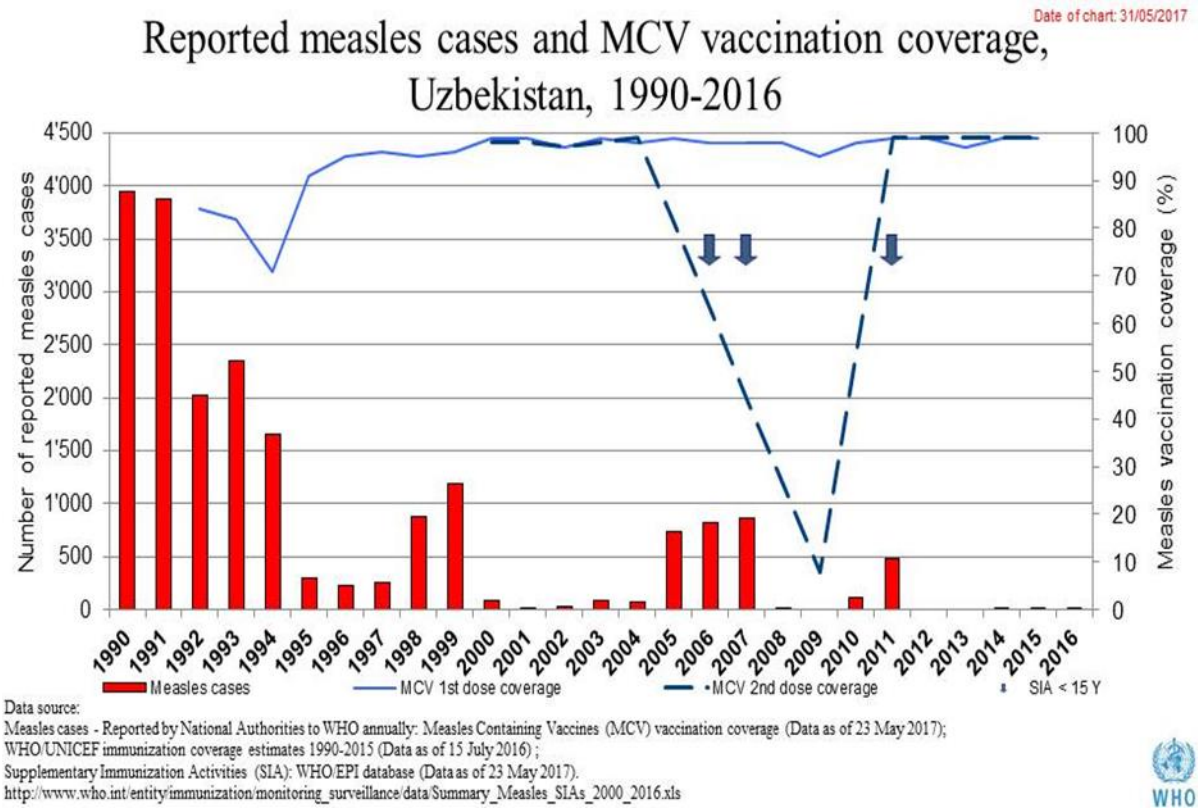
Ministry of Health, application approved by UNICEF, MoU between UNICEF and the Ministry of Health signed, and the Letter of Guarantee signed by the Ministry of Finance).

3. PERFORMANCE OF THE IMMUNISATION SYSTEM IN THE REPORTING PERIOD

3.1. Coverage and equity of immunisation

Over the past 15 years, the National Immunization Program (NIP) has demonstrated consistently high levels of coverage of all EPI vaccines. For example, coverage of three doses of DTP containing vaccines was 99% or higher during the last 5 years. According to administrative reports, high rates of immunization coverage are recorded at all levels (oblasts, districts and institutions).

Similarly, high coverage rates for the first and second dose of the MCV have been registered at the national and subnational levels since 2011.



The NIP achieved the goals defined by the European Immunization Plan: 95% of the coverage by three doses of DTP containing vaccines at the national level and 90% at the sub-national level. The country data is limited on equity, however overall there no indications that suggests gender barriers for children under 1 for health. In terms of wealth quantiles and coverage, there is no verified data available since 2006 MICS. In 2016, no outbreaks were reported by the country and the MOH keeps surveillance as one of the important elements of the program which requires further support and improvement. Currently, Household survey conducted in the framework of HSS aimed to learn existing knowledge, attitude and practice among parents and medical professionals regarding immunization. First results are expected by the end of 2017 with more deep analysis and recommendations for follow up through Information and Education Communication (IEC) strategy and action plan.

Immunization is provided to all target populations free of charge in primary health care facilities according to the National Immunization Calendar. Vaccination is carried out by general practitioners (examination and referral) and a nurse-vaccinator. Sanitary and Epidemiological Service (SES) institutions are responsible for coordination, training, planning, storage and delivery of vaccines. Post

introduction evaluation of the Rotavirus and pneumococcal vaccines conducted recently showed high commitment and motivation of medical personnel working in the immunization programme. However, in some health institutions and SES points there is a lack of staff and high turnover (GPs, immunologists, vaccinators, epidemiologists).

Rotavirus Surveillance

Uzbekistan added rotavirus vaccine to the national immunization program in June 2014. As part of Global Rotavirus Surveillance Network (GRSN), surveillance for rotavirus gastroenteritis began in January 2014 in Tashkent and in August 2014 in Bukhara.

The rotavirus surveillance platform is being used to conduct a case-control study to estimate rotavirus vaccine effectiveness (VE) with enrolment in the study ending 31 December 2016. In 2017, polyclinics continue to be visited to obtain information on the vaccination status of eligible children for the VE study. To reduce the cost of rotavirus surveillance, WHO EURO provided technical assistance on implementing systematic sampling of eligible children for enrolment in rotavirus surveillance beginning in 2017.

In 2005-2006, rotavirus surveillance, funded by the Research Council of Norway and the Norwegian Institute of Public Health, was conducted at the same sentinel hospitals. The percentage of hospital admissions positive for rotavirus among children aged <5 years in 2005-2006 was 30%. (Source: R Latipov et al., Epidemiology and burden of rotavirus disease in Central Asia. *International Journal of Infectious Diseases* 2011; 15, e464-e469).

In 2016, 5819 children were enrolled in rotavirus surveillance with 748 (13%) testing rotavirus positive, the most common genotype strain was G9P[4], the Institute of Virology passed the external quality assurance (EQA) program coordinated by the Global Reference Laboratory in Atlanta, GA and the external quality control (EQC) program coordinated by the Regional Reference Laboratory in Minsk, Belarus. Rotavirus disease in Uzbekistan occurs in a seasonal cycle with peak occurrence in fall months (September-December).

Rotavirus surveillance activities and the feasibility of estimating the effectiveness of rotavirus vaccine were assessed by WHO EURO in August 2016. As a result of this visit, the Ministry of Health arranged for stool specimens from 2014-2016 to be sent to the Regional Reference Laboratory for the first time for EQC purposes and for genotyping.

Enrolment in the case-control study to estimate rotavirus vaccination effectiveness (VE) ended 31 December 2016. In 2017, polyclinics continue to be visited to obtain information on the vaccination status of children eligible for the rotavirus vaccine effectiveness evaluation.

A ten-day rotavirus genotyping training coordinated by WHO EURO was conducted by staff from the Regional Reference Laboratory at the Institute of Virology in January 2017.

In 2017, Uzbekistan began participation in the WHO-coordinated Global Paediatric Diarrhoea Surveillance Network (GPDS). The country is leveraging the existing rotavirus surveillance platform to monitor more than twenty enteric pathogens.

IB-VPD Surveillance

Uzbekistan added PCV13 vaccine to the national immunization program in November 2015. As part of Global Invasive Bacterial Vaccine-Preventable Diseases (IB-VPD) Surveillance Network (GISN), bacterial meningitis surveillance began in 2010 in Uzbekistan. In 2016, 73 children were enrolled in IB-VPD surveillance and a pathogen was detected in 7 children (*Streptococcus pneumoniae* (Spn) was detected in 6 children and *Neisseria meningitidis* (Nm) was detected in 1 child). Cerebrospinal fluid (CSF) specimens from the second half of 2016 have not been sent to the Regional Reference Laboratory for pathogen detection and serotyping/serogrouping by polymerase chain reaction (PCR). Uzbekistan was unable to participate in the 2016 external quality assurance program because the proficiency panel could not be delivered.

Epidemiology and laboratory leads for IB-VPD surveillance were met by WHO EURO during the rotavirus assessment visit in August 2016. The Ministry of Health was reminded that one of the IB-VPD surveillance performance criteria was the enrolment of a minimum of 100 cases of suspected meningitis.

A regional hands-on training coordinated by WHO EURO on the new, direct real-time PCR method for detection and molecular characterization of molecular agents (i.e., *Streptococcus pneumoniae* (Sp), *Haemophilus influenzae* (Hi) and *Neisseria meningitidis* (Nm)) was conducted by staff from the Global Reference Laboratory in Atlanta, GA in April 2017. A laboratory member from Uzbekistan participated in the workshop. The training was held at the Lugar Center for Public Health in Tbilisi, Georgia. This new method does not require DNA extraction. It reduces the risk of contamination, requires a lower volume of CSF, saves processing time, and results in cost savings when compared to conventional multiplex PCR. Details are provided on the WHO/EURO website at http://www.euro.who.int/en/health-topics/disease-prevention/vaccines-and-immunization/news/news/2017/05/training-of-lab-experts-improves-capacities-to-detect-causes-of-meningitis and in the May 2017 edition of the WHO Global Immunization Newsletters (GIN) at http://www.who.int/immunization/gin/en/.

3.2. Key drivers of low coverage/ equity

Although immunization rate reported high, there are certain challenges and gaps in health workforce and equity. Unfortunately, due to lack of transparency and reliability of data no evidences can be reported in this area. Whereas, there is a big risk for keeping coverage rate at sufficient level.

Health Workforce. Some regional and district SES and health facilities have shortage of epidemiologists and general practitioners to support the immunization activities. This compounded the existing high workload for vaccinators, immunologists and general practitioners related to increased immunization recording and reporting for new vaccines, using multiple forms. The challenges to meet the demands of new programs are exacerbated by vaccine shortages, which require rescheduling of children to a time when vaccines are available, and by the temporary suspension of immunization services due to participation of health workers in the seasonal agriculture work**.** Planned reforms to health service points are currently being implemented and may create additional challenges for the delivery of immunizations if closures of some health clinics result in increased travel distances for parents and patronage nurses. If this occurs, the current approach to outreach immunization may need to be reconsidered. Taking into account above mentioned issues significant portion of Gavi's HSS grant will be spent to build national capacity at the PHC level, improve knowledge and clinical oversight on quality of care by strengthening supportive supervision and training. Within the HSS grant as well is within PEF TCA support, the country will develop and adopt Standard Operational Procedures for vaccine management, which will increase the efficiency of services.

Supply chain. UNICEF SD is requested to make several deliveries of vaccines throughout the year due to inadequate cold chain capacity at national level and in some regions**.** Lack of vaccine storage capacity at the national and at some regional facilities has been previously documented, as well as aging and outdated equipment and buildings at national, regional, district and health facility levels. Stock outs were also reported in several health facilities for PCV and for rotavirus, pentavalent and polio vaccines, resulting in delays in the adherence to vaccination schedules, increased workload amongst health care staff and an inconvenience to mothers. The country has repeatedly raised the issue of the problems of the cold chain (insufficient volume at the national level and some areas, worn-out, obsolete equipment, lack of auto-refrigerators). The solution of these problems, including support to improve use of supply data chain is reflected in the transition plan, the Gavi Grants for HSS and CCEOP. Another critical issue is constant power cuts, which in some districts occur up to few times a week. Rural health facilities implement immunization sessions one or two times per month and bring vaccines from district stores only on immunization days.

The cold chain issues are to be addressed under the HSS as major component of the HSS is towards building central storage to meet the needs of the country. In addition, further support is to be provided under the CCEOP which is being approved by Gavi at the time of finalization of the JA report. Additional

technical support for EVM improvements such as SOPs are also supported under the PEF TCA during 2016 and continued in 2017. For development and implementation of CCEOP operational plans in 2018 and following years, there is need to have staff support, particularly for UNICEF, to follow up shipments, deployment, and updating the operational and deployment plans based on the progress made. This is substantial amount of additional work which partner offices do not have capacity to support under the current staffing.

Planning and Financing.

Failure to use quality data and timely reach government consensus on vaccine targets led to vaccine stock outs and immunization programme interruption. Moreover, there is insufficient understanding of the importance of providing correct and complete information to Gavi for vaccine procurement planning. Quite often the shipments are delayed due to late payments for the vaccines. This results in inadequate vaccine stock at the national level. Vaccine shortages were compounded by the lack of buffer stock procurement and availability. The delays in vaccine supply in 2016 caused vaccine stock outs at all levels, including health facilities. The immunization staff and health workers reported stock outs of rotavirus, penta, and polio vaccines in some vaccine stores and health facilities, sometimes lasting longer than several months.

During 2016 the country faced challenges in ensuring timely financial resources for vaccine procurement. The main financing challenge was related to lengthy currency conversion process that can take up to 3 months (therefore causing delays in transfer of USD amounts to UNICEF SD). Issues with calculation of target are another reason of insufficient allocation of funds. To address this issue country is using PEF TCA grant to through recalculation of annual vaccine procurement budget using the unified budgeting template.

Under the framework of PEF TCA activities in 2016, UNICEF assessed the country's eligibility for subscription to the Vaccine Independence Initiative (VII). The assessment concluded that, given previous cash flow timing issues, accessing the VII credit line might help the country to ensure timely vaccine procurement (and thus reducing risk of stock outs). Subsequently, the VII subscription process was successfully completed by end of Q2 2017(VII Plan developed and submitted to UNICEF by the Ministry of Health, application approved by UNICEF, MoU between UNICEF and the Ministry of Health signed, and the Letter of Guarantee signed by the Ministry of Finance).

In addition, in March 2017 a joint mission conducted to the country with Alliance partners to address some immunization financing issues in relation to improved forecasting (including use of more accurate data for planning and financing) for vaccine procurement. The issues discussed in depth with the MOF and MOH officials to ensure uninterrupted vaccine implementation. As part of PEF TCA, UNICEF SD in 2016 initiated capacity building activities around improvement of vaccine forecasting and procurement. Strengthening capacities for vaccine procurement and budgeting, will continue in 2017 and 2018 as part of TCA and Transition grant

Equity and access. Prior to the beginning of health care reforms (see subchapter on the context of the country), the maximum distance to the nearest health facility did not exceed 5-7 km, hence geographical access both in the city and in rural areas contributed to high coverage rates. However now, with massive cuts of the PHC points it is predictable especially in rural areas may negatively affect the level of immunization coverage. Country will need to develop mitigation strategy for dropping out of the most vulnerable population from the immunization services and consider possibility of introducing mobile immunization services, especially during winter period in rural areas located in hard to reach households. In order to develop mitigation strategy equity focus evidence is needed. It would be beneficial to conduct an equity assessment in the 2018 TCA depending on the results of the household survey under the Gavi HSS.

HSS support targets strengthening of the PHC infrastructure. Priority will be given to negotiating and advocating with officials on efficient use of HSS investments while determining locations for infrastructure efforts as well as having immunization coverage as key determinant under the health sector optimization efforts. This situation may also require to review the HSS implementation and make revisions in early 2018 in collaboration with MOH, MOF and Alliance partners.

Country JA discussions outlined PEF TCA 2018 to compliment HSS Grant and Transition plan and moreover to increase efficiency of the implementation of the HSS grant. Also TCA for 2018 includes activities:

- To secure, analyse, plan overall expenditure and financing for immunization from all sources;
- To support immunization data collection, management, analysis and overall data quality improvement, as well as support for the planning and implementation of regular surveys;
- To strengthen the capacity of national level leadership, management, oversight, and coordination (NITAG); and
- To support strategic and operational planning (cMYP), monitoring of implementation and follow-up of the plan.

3.3. Data

One of the bottlenecks identified in the UN's country assessment is availability and use of data, including immunization data.

The country did not have any census since 1989 which results on concerns on up to date of data on development indicators, leads to data reliability issues and concerns around the denominators, and challenges the coverage data. These issues creates instability for the program to manage the vaccine forecast each year and planning processes.

All health facilities submit monthly immunization reports (Form 6) and annual immunization reports (Form 5) to the district SES, where these are compiled and the information sent forward to the regional SES, which then report aggregate data to CDSES. These reports reflect the monthly coverage rates for each dose of each vaccine and provide end-year point estimates of immunization coverage for each antigen. Recent PIE showed absence of unified understanding and instructions on filling monthly and annual forms and how to interpret the data. Health facilities and districts estimated immunization coverage for infant vaccines (i.e. for polio, rotavirus, pentavalent vaccines, and PCV) using different denominators.

In order to address reporting issues, 2018 TCA foresees support for immunization data collection, management, analysis and overall data quality improvement. In addition, under HSS there are efforts for capacity building on data analysis and reporting as well as development of VMIS.

3.4. Role and engagement of different stakeholders in the immunisation system

The ICC in Uzbekistan is not fully functional and requires more formal and systematic engagement. The oversight provided by the ICC is limited as the ICC does not meet regularly. Its membership is also expected to be expanded to include other Ministries and in-country partners' representatives. Under the SFA, Leadership Management Coordination (LMC) support, it is planned to provide support to Uzbekistan to revitalize is initiated during a joint country visit.

During the reporting period National Immunization programme benefited from cross sectoral collaboration between Ministry of Health and Ministry of Finance. Under the 2016 PEF TCA, UNICEF assisted Uzbekistan in identification of the suitable supply financing options for vaccine procurement with the goal of helping to ensure adequate financing capacity to purchase vaccines. Standard template and procedure for vaccine procurement budgeting was developed using cMYP 2016-2020 as reference tool. Standard template was presented to the relevant governmental stakeholders during the workshop.

This event also gave possibility for participants to use the standard template to re-calculate 2-year-projection of vaccine procurement budget needs for 2017-2018.

4. PERFORMANCE OF GAVI GRANTS IN THE REPORTING PERIOD

4.1. Programmatic performance

Uzbekistan is projected to transition by the end of 2020. In 2018 country will fully finance Pentavalent vaccine, in 2019 Rota vaccine and in 2020 Pneumococcal vaccine.

PCV was added to NIP in November 2015 in all areas of the country with the financial support of Gavi. The vaccine currently used is Prevnar 13 (Pfizer) and procured through UNICEF. PCV is provided to all children at no cost through primary health care facilities and is administered in three doses at age two months, three months and twelve months. In order to identify strengths and areas for improvement associated with the PCV introduction, WHO conducted post-introduction evaluation (PIE) of PCV vaccine during 20-28 April 2017.

The evaluation found that there was strong political support for PCV introduction at all levels and that all staff interviewed were highly motivated and committed to the immunization program. Prior to the start of PCV introduction, comprehensive cascade training sessions were held for regional and district SES and health facility staff and medical experts. The PCV training materials were distributed to the participants and the information presented was generally well received and appreciated. Immunization cards, immunization reporting forms and immunization regulatory documents had been updated to include PCV vaccine. PCV introduction went very smoothly and that the vaccine was well received by parents and healthcare workers.

The PCV 1 and PCV 2 coverage for 2016 and first quarter 2017 were reported as over 99%, and regional, district and health facility data obtained during the evaluation were consistent with this very high uptake. PCV 3 coverage was not assessed due to the limited cohort of children who had received this dose; it was noted that PCV shortages at the national level during the period September 2016 to January 2017 led to prioritizing infants to receive the first two doses and would have impacted PCV 3 coverage.

PIE, also noted that the reporting forms filled out by hand were cumbersome and time consuming. There was also inconsistent completion and interpretation of data from immunization reporting forms at the health facility and district levels, including the information on coverage. PIE also noted that some local practices on contraindications, e.g., Tashkent, were not consistent with WHO recommendations, placing vulnerable children at risk.

It was also observed that the quality of supervisory visits seemed to vary among health facilities and supervisory reports were not always available, making it unclear whether adequate follow up was done to ensure uptake of recommendations. Due to lack of funds, national level staff had not visited all regions. Supportive supervision visits to monitor reporting are planned HSS, which will allow to identify existing problems and propose solutions to address them. In addition support to implementation of data quality review and improvement of data management system through introduction of analytical functions is planned under transition grant.

Considering this fact, HSS grant covers development of software for vaccine stock management which involves all level cold chain stores. It is planned to connect EPI managers to this system so they have constant access to up-to-day and reliable information which will help to prevent stock outs and plan procurement in time.

HSS grant agreement were issued in September 2016 and first tranche for UNICEF was disbursed in October 2016. WHO portion of the 1st tranche was received in June 2017. UNICEF project team was recruited (National Officer and two Assistants) was finalized by 1 June 2017. Initial assessment of construction/renovation spots in the regions conducted by national construction expert has revealed the actual situation with facilities given for cold/dry rooms and provided with necessary information on the work needed. All preparatory work for construction/renovation as well as the process itself is done in close cooperation with government partners at national and regional level. Upon completion of initial assessment it was revealed that initially planned construction in some regions might be substituted by renovation.

Due to limited space of premises available for cold chain, an order for cold rooms might be concluded with different manufacturers which will be agreed with MoH beforehand. The project team has started communicating with UNICEF Supply Division regarding technical specifications, warranty and possible freight cost for the most valuable equipment - cold rooms. This information will be used while final decision is made for identification of volume of construction/renovation work.

In order to generate evidence on demand for immunization services, KAP study has been started in all regions which will provide with key information for the development of Information and Education Communication (IEC) strategy and action plan to increase demand. The questionnaire were developed and tested before being released for study. Field work will be conducted during one and half months followed by tabulation and data analysis. It is planned to have initial results per regions by the end of this year and final analysis and recommendations in first month of 2018.

As result of capacity building on revised immunization curricula, 493 employees of medical education facilities from Ferghana, Andijan, Namangan, Kashkadarya, Surkhandarya, Khorezm regions, and Republic of Karakalpakstan have updated knowledge on immunization based on latest WHO recommendations.

WHO finalized recruitment of the national officer for HSS and that contract was signed by 30 June 2017. Similarly to that, position of project assistant became available from July 2017 on the basis of temporary appointment. Also, due to rapid healthcare reforms started in Uzbekistan from March 2018 aiming at significant optimization of healthcare facilities and expected reduction of vaccinators, re-distribution of healthcare workers among different health institutions, consultations are ongoing with country office and national stakeholders to agree upon timeframe and content of expected capacity building activities within HSS project. Therefore, WHO has proposed establishment of the national working group or similar body to endorse the content of training modules tailored for each respective audience: vaccinators, chief nurses, mid-level managers and will be translated into local languages, as well as guides for supervisory visits.

Country applied for the CEEOP support in September 2016 and was approved by the November IRC with comments. Country didn't established formal Project management team but started together with WHO and UNICEF CO to develop deployment plan. This process was delayed due to reforms in primary health care sector. Unavailability of list of remaining PHC points made impossible to finalize list of installation sides by June 2017 as it was requested by Gavi. There is an urgent need to work on operationalization of CEEOP and develop workplan. Therefore additional support for staffing is needed, but also it is necessary to advocate for high level ownership, commitment and teamwork for both HSS and CCEOP projects.

HSS activities under the WHO management accelerated in 2017. To implement the HSS activities, coordination with the national stakeholders was established to agree with the MoH on the plans and schedule of trainings. It was also agreed that MoH will prepare a register of specialists in the field who involved in immunization practice to assess the coverage (linked to ongoing healthcare reforms).

In addition to that, coordination meetings with all involved parties are agreed to be conducted monthly with WHO, UNICEF and MoH discussing activities and future plans, including trainings, procurement and other points.

Taking into account high turnover rate among vaccinators/nurses, limited skills of health care professionals to manage vaccines and deliver immunization services, significant attention was paid to build national capacity at the PHC care level, improve knowledge and clinical oversight on quality of care. Safe Immunization trainings for 100 GPs of Tashkent and Tashkent province have been organized on August 14-26, 2017.

4.2. Financial management performance (for all cash grants, such as HSS, vaccine introduction grants, campaign operational cost grants, transition grants, etc.)

PCV grant was received by UNICEF. Funds allocated to programme was $ 467,592.59. At the time of writing JA report zero balance was available.

Rota grant was received by WHO. Amount budgeted: $ 499,065. Balance available: 0

IPV grant was disbursed to WHO. Amount budgeted: $ 438,882. Amount implemented: $ 192,707. WHO requested non-cost extension for 2018 for available $ 200,000 to be reprogrammed for 2018 as supply becomes available.

UNICEF component for HSS grant is US$3,837,201 for the 1st tranche. Total spent by the end of September of 2017 is US$360,358.32.

WHO component of the HSS grant for the 1st program year is US$262,799. Balance as of October 2017 is US$ 27,265 with utilization rate of 89.6%. WHO is ready for the next allocation of the funds for 2018 and here by requesting the approval for US$ 714,444 as per the existing grant agreement.

4.3. Sustainability

Uzbekistan is projected to transition out of Gavi support by the end of 2020. All NIP vaccines are purchased through the UNICEF Supply Division. Starting 2018 the country will fully self-finance Penta vaccine, in 2019 - Rota vaccine, and in 2020 - PCV vaccine. In 2016 the country fulfilled its obligations for co-financing, although with delay in payment. More specifically, the delay was related to PCV co-financing. This was caused by poor process of vaccine forecasting and inefficient communication between MOH and MOF about requirements for a sufficiently funded vaccine budget. MoF and MoH used different methods for calculating vaccine needs (discrepancies in target population numbers and new-borns cohort size; lack of common understanding of remaining stocks, wastage rate and buffer considerations, etc.) and the planning process between the two ministries was not aligned, which resulted in multiple changes in targets submitted to Gavi throughout the year. Vaccine procurement and budgeting workshop, organized by UNICEF in 2016, tried to address this gap by bringing together MoH and MoF and going through the forecasting, calculations and budgeting exercises – the workshop will be repeated in July 2017 to further strengthen country's capacities (support through PEF).

Uzbekistan has developed and applied for a Transition Plan (TP), which is approved by ICC. The focus areas of the TP are based on identification of country specific challenges. The plan, which was developed under the leadership of WHO EURO with participation of all partners. Key activities can be highlighted as follows:

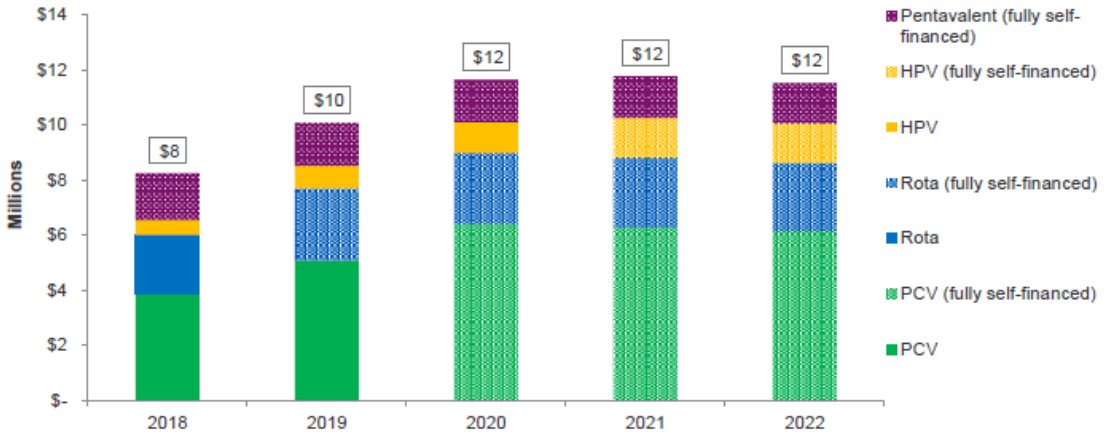
- To improve **country planning, management & monitoring** country will conduct National Immunization Programme Review. Recommendations of the review which will require cross-sectoral collaboration and system level changes will be discussed during parliamentarian hearings.
- To assist the country to be on track for **successful transition from Gavi** it is planned to initiate, develop and implement resource mobilization plan and organize high level advocacy events. More specifically, there is also a need for further advocacy support with the Ministry of Finance in view of the lack of consistent support to immunization spending from MoF. A consistent and reliable process of forecasting for immunization programme needs to be established and agreed by both MoH and MoF. It is expected that these will enhance efforts of the country to timely mobilize domestic resources required to achieve programme objectives.
- To support country on **vaccine implementation,** WHO will continue strengthen capacity of NITAG to make evidence-based recommendations.
- To strengthen capacity of the government to **use data for informed decision making,** the transition plan will be used to improve efficient monitoring of vaccination status of children. For this country will develop and introduce home based vaccination cards, support to implementation of data quality review and provide technical assistance to improve target population estimates. This will be complemented by improving the use of supply chain data via an update of their SOPs, records, indicators and tools, including the national stock management system, which will be reviewed in view of a transition to an electronic stock management system.
- As the majority of the country issues require **system strengthening,** the transition plan includes support to introduction of collaborative agreement procedures for registration of WHO prequalified vaccines and support to strengthen causality assessment function of AEFI. UNICEF SD will continue support to building capacities of national and local authorities in procurement of

vaccine and vaccination related supplies. The country expressed their need for better understanding of vaccine prices forecasting and general market mechanisms impacting country's planning, budgeting and management of vaccines.

In terms of immunization financing outlook for 2017, MTEF and other indicators show that there is no change in economic growth or projected expenditures in public sector and that immunization program budget is funded in full as requested by the MOH. For 2017, US$12million is allocated for vaccine procurement which covers all EPI vaccines including co-financing of Gavi supported vaccines.

The total cost of Gavi-supported programs to Uzbekistan in the next five years is projected at approximately US$10.6 mil per year on average (graph and table below) with the most significant increase (25%) from 2018 to 2019. The cost will peak at US$11,75 mil in 2021.

Co-financing projections 2018-2022



	2018	2019	2020	2021	2022
Pentavalent	$ 1,690,272	$ 1,557,882	$ 1,527,233	$ 1,496,583	$ 1,466,308
PCV	$ 3,851,582	$ 5,069,034	$ 6,401,359	$ 6,272,905	$ 6,145,484
Rota	$ 2,166,742	$ 2,626,964	$ 2,577,104	$ 2,524,129	$ 2,474,270
HPV	$ 529,598	$ 815,287	$ 1,112,452	$ 1,459,551	$ 1,430,024
Total	**$ 8,238,194**	**$ 10,069,166**	**$ 11,618,148**	**$ 11,753,168**	**$ 11,516,085**

4.4. Technical Assistance (TA)

The TCA was received in April 2016 funds from GAVI where distributed between WHO and UNICEF. During the reporting period (April 2016 - May 2017) WHO and UNICEF worked with the MOH and other partners, establishing strong grounds for effective implementation of the planned activities.
In particular progress was reached in areas of:

Immunization planning

The cMYP 2016-2020 was developed to provide strategic guidance to the national immunization programme. Using the cMYP, the unified Vaccine Procurement Budgeting Template was developed, and the hands-on exercise to forecast vaccine procurement budget for 2017 and 2018 was organized which helped build national capacity in the vaccine procurement budgeting. The Vaccine Procurement Budgeting Template has helped to streamline the budgeting process (budget for 25% buffer stock approved). Additionally, the assessment of supply financing options available in the country was conducted, including feasibility assessment of subscription to VII. The country was found eligible for VII subscription and was granted access to a VII ceiling of $3m. Using TCA support country hosted vaccine procurement workshop,

which built capacity of the national and mid-level managers to proper plan procurement through UNICEF SD.

New Vaccine Introduction

TCA supported HPV vaccine cost-effectiveness study. This provided country's NITAG and ICC with to collect local economic evidence to support advocacy for allocation of funds to introduce HPV vaccine. HPV vaccine introduction is further postponed due to the supply limitation occurred in 2017. Uzbekistan indicated their interest to change their target group to 9 years old, and conduct a multi age cohort catch up during the year of introduction. As introduction is delayed, the alliance partners are working with the country to revise plans and budget to reflect these changes and benefit from the Gavi's multi age cohort support for HPV.

NITAG was evaluated using standardized questionnaire and results of the evaluation as well as further steps to improve NITAGs performance where discussed during regional meeting for NITAGs. The Chair and the Secretary of NITAG participated in ETAGE meeting was held on 12-13 October 2016.

TCA funds were used to conduct PCV post-introduction evaluation in April 2017. Results of the evaluation helped to identify strengths and areas for improvement associated with the PCV introduction, proposed solutions to identified problems and will serve to improve planning for introduction of HPV vaccine.

Vaccine management & Supply chain

To institutionalize best vaccine management practices by strengthening national legislation and regulatory frameworks and by adopting quality management system approaches in the supply chains of vaccines and other pharmaceuticals requiring cold chain technical assistance was provided to adopt/develop vaccine management SOPs.

Country was supported in development of cold chain rehabilitation & maintenance plan, which in this turn served as a basis for CCEOP & HSS process support. Step by step guidance was provided throughout the CCEOP application process.

Rotavirus Surveillance

- WHO EURO continued to provide technical assistance for rotavirus surveillance, procured the WHO recommended enzyme immunoassay (EIA) kits to detect the rotavirus antigen, obtained primers and probes for rotavirus genotyping from the Global Reference Laboratory, and provided logistics assistance for the external quality assurance (EQA) and external quality control (EQC) programs.

- WHO EURO assessed rotavirus surveillance activities and the feasibility of estimating the effectiveness of rotavirus vaccine in August 2016. As a result of this assessment visit, stool specimens from 2014-2016 were sent for the first time to the Regional Reference Laboratory for external quality control purposes and for genotyping of rotavirus specimens in late 2016. The Institute of Virology passed the rotavirus external quality control (EQC) program overseen by the Regional Reference Laboratory in 2014 through 2016. In addition, the Institute of Virology passed the rotavirus external quality assurance (EQA) program overseen by the Global Reference Laboratory in 2016.

- WHO EURO coordinated a ten day rotavirus genotype training in January 2017 at the Institute of Virology in Uzbekistan.

- WHO EURO continued to provide technical assistance for the case-control study to estimate rotavirus vaccination effectiveness (VE); enrolment in the study ended 31 December 2016. In 2017, polyclinics

continue to be visited to obtain information on the vaccination status of children eligible for the rotavirus vaccine effectiveness evaluation.

- WHO EURO provided technical assistance to reduce the cost of rotavirus surveillance after enrolment in the VE evaluation ended. Beginning in January 2017, eligible children are systematically sampled for enrolment in the Global Rotavirus Surveillance Network (GRSN).

- WHO EURO provided technical assistance to leverage the existing rotavirus surveillance platform to monitor over 20 enteric pathogens. Uzbekistan began participating in the Global Paediatric Diarrhoea Surveillance Network (GPDS) in January 2017.

- WHO EURO created practicums on analysis and presentation of rotavirus surveillance data. Standard rotavirus surveillance outputs, general data analysis tips, and data cleaning and validation rules were presented at the regional rotavirus surveillance meeting. Specific analysis topics included filtering data, creating analysis variables, and generating summaries using pivot tables. Participants practiced producing the standard outputs using case-based rotavirus surveillance data.

- WHO EURO coordinated the regional rotavirus surveillance meeting in June 2017. Country-level, regional, and global updates on Global Rotavirus Surveillance Network (GRSN) activities and updates on epidemiology and laboratory topics were presented. Countries engaged in discussions about sustainability of rotavirus surveillance and countries with relevant partners engaged in discussions about the next steps in the implementation of the Global Paediatric Diarrhoea Surveillance (GPDS) Network. Participants from each country participated in the workshop on rotavirus surveillance data analysis and presentation techniques.

IB-VPD Surveillance

- WHO EURO provided technical assistance for IB-VPD surveillance and procured rapid diagnostic test kits (RDT) (i.e., Latex agglutination kits and Binax kits).

- WHO EURO met with epidemiology and laboratory leads for IB-VPD surveillance in August 2016 during the assessment visit for rotavirus surveillance. IB-VPD surveillance staff were reminded of the IB-VPD surveillance performance criterion of enrolment of a minimum of 100 suspected meningitis cases.

- WHO EURO coordinated a regional hands-on training workshop to improve capacities to detect the causes of bacterial meningitis. The workshop was on the use of new, direct real-time PCR method for detection and molecular characterization of molecular agents (i.e., Sp, Hi, and Nm); this method does not require DNA extraction. A representation from the national laboratory in Uzbekistan participated in the workshop conducted by staff from the Global Reference Laboratory in April 2017. This method has several advantages compared to conventional multiplex PCR, as it reduces the risk of contamination, requires a lower volume of CSF, saves processing time, and results in cost savings. (A detailed description is provided at http://www.euro.who.int/en/health-topics/disease-prevention/vaccines-and-immunization/news/news/2017/05/training-of-lab-experts-improves-capacities-to-detect-causes-of-meningitis and at http://www.who.int/immunization/gin/en/).

5. UPDATE OF FINDINGS FROM PREVIOUS JOINT APPRAISAL

Prioritised actions from previous Joint Appraisal	Current status
1. NITAG Strengthening	In progress. Strengthening NITAG through participation in ETAGE meeting and WHO Regional meeting for NITAGs.
2. Training of health care workers on false contraindications	Activity was not funded by 2016 PEF TCE
3. CCEOP proposal development	Completed. CCEOP application developed and submitted based on findings of EVM, cold chain rehabilitation and maintenance plan.
4. Vaccine procurement support	Conducted. Capacity of MoH and MoF on procurement built (including procedures of procuring through UNICEF SD) to support proper planning of immunization supplies' needs. VII subscription process completed (including access to a VII ceiling of $3m) Assessment report of supply financing options is available.
5. Vaccine legislation support	Completed. cMYP is in place and provides strategic guidance to the national immunization programmes. Using cMYP, the unified Vaccine Procurement Budgeting Template was developed. cMYP costing update exercise through recalculation of 2017 vaccine procurement budget using the unified budgeting template helped to streamline the budgeting process and allocation of budget to cover 25% buffer stocks (approved by Parliament).

Training of health care workers on false contraindications was not funded by 2016 TCE – should be included in 2018 TCE support or transition plan.

6. ACTION PLAN: SUMMARY OF FINDINGS, ACTIONS AND TECHNICAL ASSISTANCE NEEDS IDENTIFIED AND AGREED DURING THE JOINT APPRAISAL

Key finding 1	Sustainability
Agreed country actions	External high level advocacy support on immunization financing and sustainability Review of vaccine legislation and alignment with new health reform processes Support for resource mobilization activities (Transition Plan - TP) Development of SOPs on budget planning and funds allocation and capacity building of relevant stakeholders for both MoH and MoF on use of unified budget template (Transition Plan + PEF TCA 2018) Further facilitation of vaccine procurement and budgeting process (continuation from 2017)
Associated timeline	2018 – 2019

Technical assistance needs	Partially will be covered through Transition Plan but additional TA needed
Key finding 2	Leadership Management and Coordination
Agreed country actions	EPI review (TP) WHO Staff Support to build capacity for MoH on immunization (Staff Support – WHO TCA 2018) NITAG support (Transition Plan) ICC reviving, strengthening and support of secretariat (meetings protocols, experience and information sharing, monitoring of execution of the decisions) (LMC Support)
Associated timeline	2018 - 2019
Technical assistance needs	Included in TP, but additional TA needed under PEF TCA
Key finding 3	Vaccine specific support
Agreed country actions	Improve vaccine uptake by avoiding false contraindications Adaption of Immunization in Practice modules Introducing collaborative procedures for vaccine registration (There is support under the TP but additional TA is required)
Associated timeline	2018 - 19
Technical assistance needs	PEF TCA 2018-19
Key finding 4	Data
Agreed country actions	Continuation of rota virus surveillance (Ensure sustainable rotavirus disease surveillance by continuously enrolling eligible rotavirus cases at sentinel hospitals. Country requests technical assistance for epidemiology and laboratory components of surveillance activities, continued support for diagnostic kits and laboratory supplies, shipment of samples to RRL for EQC and genotyping, assistance with EQA, transportation of samples to Institute of Virology, laboratory and hospital staff, and site visits to sentinel hospital in Bukhara.) Conduct DQA (Transition Plan) Provide technical assistance to improve target population estimates (Transition plan) Home based vaccination cards (Transition Plan) Immunization website (Transition Plan) AEFI surveillance support (PEF TCA) Introducing analytical functions for immunization data (Transition Plan) Introducing multi dose vaccine policy (Transition Plan) Equity Assessment (Additional Support)
Associated timeline	2018 - 2019
Technical assistance needs	Included in TP, but additional TA needed under PEF TCA 2018-19
Key finding 4	Supply Chain

Agreed country actions	EVM Assessment Temperature monitoring (Transition Plan) Operational Deployment Plan + UNICEF Staff Cost Rapid Assessment of HR aspects of supply chain Further elaboration of Vaccine Budget template to include cold chain equipment on balance Capacity building for procurement (Transition Plan) based on Rapid Assessment of HR aspects Improvement supply chain data (Transition Plan + HSS) Vaccine Management SOP scale up and material development (PEF TCA) Development of cold chain maintenance (Transition Plan)
Associated timeline	Q1 2018 - Q2 2019
Technical assistance needs	Included in HSS and TP, but additional TA needed under PEF TCA 2018-19
Key finding 4	Demand Promotion
Agreed country actions	Vaccine Safety, crisis communication Immunization Website (Transition Plan) Communication Support (UNICEF - TCA)
Associated timeline	Q1 2018 - Q2 2019
Technical assistance needs	Included in HSS and TCA, but additional TA needed under PEF TCA 2018-19
Key finding 5	• Introduction of IPV (Planned for May 2018) • Support for introduction of HPV vaccine
Agreed country actions	IPV Introduction preparation activities as per plans Implementing the HPV communication activities Capacity building to respond to vaccine safety events
Associated timeline	May 2018 IPV Introduction Late 2018 or 2019 (subject to availability of HPV supply for introduction)
Technical assistance needs	IPV and HPV VIGs

7. JOINT APPRAISAL PROCESS, ENDORSEMENT BY THE NATIONAL COORDINATION FORUM (ICC, HSCC OR EQUIVALENT) AND ADDITIONAL COMMENTS

JA update meeting conducted in Copenhagen in June 2017 with participation of country offices as well as focal persons of EPI and HSS of the MOH to review and agree on prioritization of TCA and alignment of the HSS and CCEOP. Finally the draft JA update report was endorsed by the EPI manager (Dr. Dilorom Tursunova) which was sent to Gavi for review in July. Final draft update report is provided in September 2017 with contributions and inputs from regional level. The report was reviewed and worked on following the Gavi Alliance Joint Mission in October 2017 for alignment with PEF TCA discussions.

8. ANNEX

Compliance with Gavi reporting requirements

	Yes	No	Not applicable
Grant Performance Framework (GPF) reporting against all due indicators			-
Financial Reports	+		
Periodic financial reports			-
Annual financial statement	+		
Annual financial audit report			-
End of year stock level report	+		
Campaign reports			-
Immunisation financing and expenditure information	+		
Data quality and survey reporting			-
Annual desk review			-
Data quality improvement plan (DQIP)			-
If yes to DQIP, reporting on progress against it			-
In-depth data assessment (conducted in the last five years)			-
Nationally representative coverage survey (conducted in the last five years)			-
Annual progress update on the Effective Vaccine Management (EVM) improvement plan	+		
Post Introduction Evaluation (PIE)	+		
Measles-rubella 5 year plan			NA
Operational plan for the immunisation program	+		
HSS end of grant evaluation report			NA
HPV specific reports			NA
Transition Plan	+		

Transition plan is finalized in October 2017.