European Journal of Interdisciplinary Research and Development
Volume-03 May-2022
Website: www.ejird.journalspark.org ISSN (E): 2720-5746

WORK ON CONSTRUCTION AND REPAIR OF OPEN DRAINAGES IN BUKHARA REGION

M.M. Makhmudova
Bukhara Institute of Natural Resources Management of the National Research University of Tashkent Institute of Irrigation and Agricultural Mechanization Engineers. Assistant

A.A. Savriddinov
Bukhara Institute of Natural Resources Management of the National Research University of Tashkent Institute of Irrigation and Agricultural Mechanization Engineers. Assistant

K.S. Sobirov
Bukhara Institute of Natural Resources Management of the National Research University of Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, student

M.M. Najmiddinov
Bukhara Institute of Natural Resources Management of the National Research University of Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, student

Abstract
The article contains excavators in Bukhara region and their optimal options for the selection of excavators, taking into account their hydraulic parametrs and the importance of collectors-ditches, as well as the timely completion of work on its cleaning and reconstruction. Substantiation using formulas. Its also provides advice on the effective use of existing excavators.

Keywords: Collector, ditch, excavator, reconstruction, bucket, productivity, soil, labor.

Introduction

Maintaining the technical condition of irrigation and land reclamation systems and ensuring their sustainable operation is one of the important factors to ensure a guaranteed harvest of agricultural crops in the region.

It is obvious that the construction of ditches, and the selection of optimal options for machines in the repair, is one of the most pressing issues in the industry today.

At present, their construction and repair requires new modern equipment, and technologies to ensure their efficient operation on the basis of modernization. The construction and repair of open ditches should take into account the specific hydrogeological, soil, and climatic conditions of the area. The purpose is to build and operate collectors, as well as to create a technological system of machines used in them. The following diagram shows the machines used to build and repair open ditches (Figure 1.1).

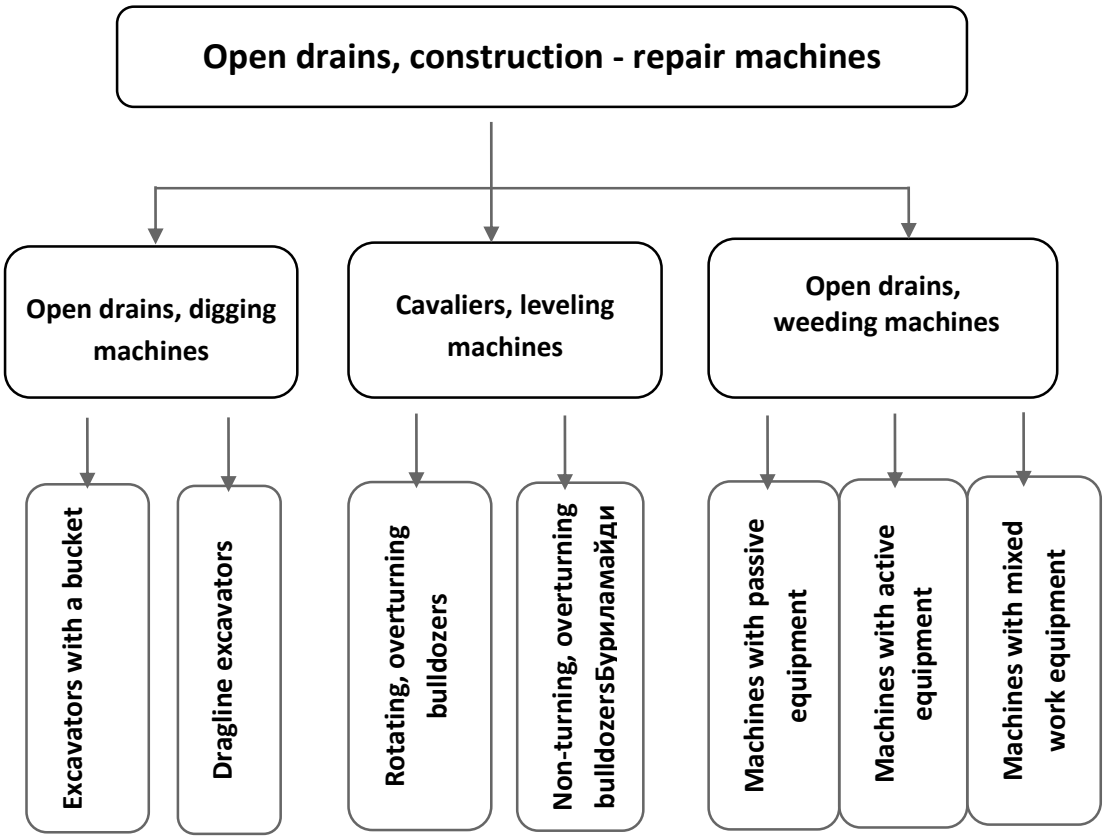

Figure 1.1. Construction of open drains, and a system of repair machines.

Soil salinity regimes are being regulated, mainly through the use of existing collector-drainage networks, saline leaching, irrigation of crops, and adherence to crop cultivation technologies. Efficient use of canals and collectors is needed to improve the reclamation of lands. The canal, which is built and used, and the collectors are required to be cleaned within the specified period (usually 2-3 years). Sediments in open drains, and the growth of various weeds, reduce their cross-sectional area and reduce water permeability. In the collectors, mainly reeds (in some cases up to 8 m in height) grow, and the space between them is filled with sediments, as a result of which the groundwater level rises, which leads to the deterioration of land reclamation.

There are special machines for cleaning open drains, which are simple, active and mixed.

Cleaning of open drains built and used in our country is carried out mainly with the help of single-bucket draglines and hydraulic excavators.

Periodically operated types include single-bucket dragline and hydraulic excavators. Types of continuous operation include multi-bucket, milling, rotor, and mixed-use machines, as well as fire-burning machines for grass and plants.

These devices can be attached to the car as a trailer or suspension. Vehicles are equipped with walking equipment: chain, wheeled, ski, and floating.

A bucket excavator is a self-propelled machine that works cyclically. Its operation is as follows: with a single bucket of a certain design and capacity, it separates the soil from the massif and brings it to the unloading site, and unloads it in a special place, or in a vehicle. More than half

of the excavation work is done with single-bucket excavators. The work cycle of a single-bucket excavator consists of the following operations: unloading the bucket; cut a layer of soil of a certain thickness and fill the bucket; turn the excavator platform and stop the bucket at the unloading site; empty the bucket, and turn the platform to stop the empty bucket.

Typically, each cycle is performed without running the excavator itself. The excavator will be relocated only after this part of the pit has been excavated, ie when it is impossible to remove the soil with a bucket.

Single-bucket excavators are classified according to their function, type of work equipment, bucket capacity, type of power device, platform turning angle, type of control, and type of walking device.

Universal excavators are designed for earthworks on Category II-IV soils in industrial, road and reclamation construction. These include the excavation of deposits, the excavation of sand, gravel or soil, the excavation of trenches, ditches, or irrigation canals, the construction of embankments, and other earthworks. They are also used for mechanization of loading and unloading, and other works (logging, piling, freezing, etc.) [23,24,25].

Open drains are dug in two main ways, depending on the size of the section: 1) moving the excavator along the canal axis; 2) by moving the excavator on the edge of the excavated axis.

An excavator equipped with a dragline moves along the axis of the canal, digging a full-profile open drain, or section of canal, in one pass. The excavated soil is loaded onto a vehicle using a dragline and transported to the designated location. [26, 27, 28]

When constructing large open drains or canals, the arrowhead does not allow the excavation of the entire section of the structure, so the canal or collector is dug in three passages: in the first pass, the excavator is driven along the canal axis, and in the next two passes, it is moved on both sides of the structure. The following modern single-bucket hydraulic excavators can be used in the construction and repair of open trenches, excavation and transportation of soils (Table 1.1).

Table 1.1 Technical parameters of modern single-bucket hydraulic excavators.

Name the pointers	**Excavator rusumi**									
	GLG 205C	GLG 225S	GLG 925LL	JYL 210E	JY 210E	JY 230E	JY 230 YeLD	JY 230 YeLB	XW 230LC	EK 2027
Type of operation	Hydraulic									
Engine brand	Kamminz 6 VTA 5.9-S 173									YaMZ 236 G-5
Power, kW (horsepower)	108 (145)	108 (145)	108 (145)	108 (145)	108 (145)	108 (145)	108 (145)	108 (145)	108 (145)	90,5 (140)
Bucket capacity, m3:	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	1,0
Maximum excavation radius, m:	9,82	9,82	9,82	9,82	9,82	9,82	9,82	9,82	9,82	9,1
Maximum excavation depth, m:	6,35	6,35	6,35	6,35	6,35	6,35	6,35	6,35	6,35	5,7
Maximum spill height, m:	6,73	6,73	6,73	6,73	6,73	6,73	6,73	6,73	6,73	6,2
Massa, tn:	26,0	26,0	26,0	26,0	26,0	26,0	26,0	26,0	26,0	18,0
Type of walking device	Chained			The wheel rakli	Chained					The wheel rakli

One of the most advanced ways to improve single-bucket excavators is to use hydraulic drive in the design of some of their mechanisms. However, only hydraulic excavators driven by work

equipment are called hydraulic excavators. Hydraulic excavators are the most advanced single-bucket hydraulic excavators for the operation of work equipment, work flow, turning platform control, and the support of additional supports (autrigers).

Hydraulic excavators have a number of advantages over mechanical excavators: 1) The design is not complicated, the mass and size are smaller (many elements of the transmission are excluded from the design - friction clutches, reducers, cardan gears, wings, etc.); 2) the movement of the work equipment is smoother (due to the possibility of adjusting the speed without steps); 3) simplified power supply to any mechanism of the machine far from the engine (due to connecting pipes and hoses); 4) better working conditions of the driver (simplified control system); 5) the use of increased power, and accordingly the possibilities of using large drilling forces are wider (due to the increase in pressure in the hydraulic system). These advantages allow hydraulic excavators to significantly increase their productivity.

Research has shown that the use of single-bucket general construction excavators in existing technology can lead to changes in canal parameters (dimensions), and carried out at the expense of the correct selection of hydraulic excavators, studied during the analysis.

References

1. Vafoev ST Amelioration machines (Textbook). Tashkent, "Science and Technology". 2013.-304 p.
2. A.R.Muratov, O.A.Muratov. IKN V 12.1-2015. Departmental norms for repair and reconstruction and construction of reclamation systems and structures. Official publication. Ministry of Agriculture and Water Resources of the Republic of Uzbekistan. Tashkent, 2015.-156 p.
3. Technical report of the Bukhara Ameliorative Expedition under the Amu-Bukhara Irrigation Basin Department for 2016.
4. AR Muratov. Methodical instructions on performance of graphic work on a theme "The organization and technology of excavation of a channel with the excavator". TIMI, 2006.-44
5. Hasanov I.S., Kochkarov J.J., Juraev A.A. Substantiation of the optimal option for the use of excavators in the cleaning and reconstruction of open collector-ditches in Bukhara region. Aktualnыe vyzovy sovremennoy nauki. XIV International scientific conference. Sbornik nauchnyx trudov. Issue 6 (14), chast 4. Pereyaslav-Khmelnitskiy, June 26-27, 2017. - 47- 49 p
6. The program "Optimization of single-bucket hydraulic excavators in accordance with the hydraulic parameters of collector-ditches" created in the programming environment "Delpi" X7. TIQXMMI BF. Buxoro, 2017.
7. Departmental standards for repair and construction work on reclamation systems and structures. Tashkent 2015. 56 pages.
8. Collection of articles of the XIV traditional scientific-practical conference of the Tashkent Institute of Irrigation and Land Reclamation on "Modern problems of agriculture and water management". April 9-10, Part II. Tashkent 2015. 56 pages
9. Proceedings of the traditional scientific-practical conference "Modern problems of agriculture and water management" Part II. Tashkent 2013 page 70
10. Instructions for use of JY230ELD, JY230E chain hydraulic excavators.

11. Исаева, Л. Б. (2011). Некотрые аспекты процесса формирования профессиональной компетентности иностранных студентов российских технических вузов. *Вестник Казанского технологического университета*, (8), 322-327.
12. Исаева, Л. Б. (2012). Образовательная среда как предмет психолого-педагогических исследований. *Вестник Казанского технологического университета*, *15*(13), 280-284.
13. Сабитова, Р. Р., & Исаева, Л. Б. (2014). Экология: курс лекций с комментариями и упражнениями для иностранных студентов технических специальностей. *Казань: КНИТУ*.
14. Z.Z.Qodirov, I.U.Oripov, A.Tagiyev, G.Shomurodova, & M.Bobirova. (2022). WATER-SAVING IRRIGATION TECHNOLOGIES IN SOYBEAN IRRIGATION, EFFECT OF SOYBEAN ON GROWTH AND DEVELOPMENT. *European Journal of Interdisciplinary Research and Development*, *3*, 79–84. Retrieved from http://ejird.journalspark.org/index.php/ejird/article/view/33
15. Egamberdiev M.S, Oripov I.U, & Toshev Sh.Sh. (2022). Development of a Method for Measuring the Layered Moisture State of Concrete and Various Bases. *Eurasian Journal of Engineering and Technology*, *4*, 82–84. Retrieved from https://geniusjournals.org/index.php/ejet/article/view/814
16. M.S.Egamberdiyev, I.U.Oripov, Sh.Hakimov, M.G.Akmalov, A.U.Gadoyev, & H.B.Asadov. (2022). Hydrolysis during hydration of anhydrous calcium sulfosilicate. *Eurasian Journal of Engineering and Technology*, *4*, 76–81. Retrieved from https://www.geniusjournals.org/index.php/ejet/article/view/812
17. Rajabov, O., Gapparova, M., Shodiyev, Z., & Inoyatov, I. (2020). Analysis of the technological process of cleaning raw cotton from small trash. *International Journal of Emerging Trends in Engineering Research*, *8*(9), 6022-6029.
18. Rajabov, O., & Shodiyev, Z. (2019). Analysis of Small Fluctuations of a Multifaceted Mesh under the Influence of Technological Load from the Cleaned Cotton-Raw. *International Journal of Advanced Research in Science, Engineering and Technology*, *6*(10), 11396-9.
19. Shodiyev, Z., Shomurodov, A., & Rajabov, O. (2020, July). The results of the experimental nature of the vibrations of the grid cotton cleaner. In *IOP Conference Series: Materials Science and Engineering* (Vol. 883, No. 1, p. 012169). IOP Publishing.
20. Shodiyev, Z. O. (2004). On mathematical modeling of the process of separation of cotton from the mesh surface of the cotton separator. In *Collection of reports of the Republican scientific-technical conference.–Tashkent: TTLP* (pp. 15-17).
21. Мухамедова, З. Г. (2020). СОВЕРШЕНСТВОВАНИЕ ПРИНЦИПОВ ПРОЕКТИРОВАНИЯ ОБОРУДОВАНИЯ МОНТАЖНОЙ ПЛОЩАДКИ АВТОМОТРИСЫ С УЧЕТОМ НОРМ НАДЕЖНОСТИ И РЕАЛЬНОГО СОСТОЯНИЯ. Известия Транссиба, (1 (41)), 83-91.
22. Мухамедова, З. Г., & Бахшиллоев, С. Х. (2021). СУЩЕСТВУЮЩАЯ ТЕХНОЛОГИЯ ПОГРУЗКИ И РАЗГРУЗКИ СКОРОПОРТЯЩИХСЯ ГРУЗОВ. Журнал Технических исследований, 4(3).
23. Мухамедова, З. Г. (2021). МЕТОДИЧЕСКИЕ АСПЕКТЫ ПОДГОТОВКИ КАДРОВ НА ОСНОВЕ ПОТРЕБНОСТЕЙ РЕГИОНОВ. ИННОВАЦИИ В ПЕДАГОГИКЕ И ПСИХОЛОГИИ, 4(9).

24. Мухамедова, З. Г., & Эргашева, З. В. (2021). ЭКОНОМИКО-МАТЕМАТИЧЕСКАЯ МОДЕЛЬ КОНТЕЙНЕРНОГО БЛОК-ТРЕЙНА. Журнал Технических исследований, 4(3).
25. Mukhamedova, Z. G. (2019). Analysis and Assessment of Power Efficiency of Special Self-Propelled Railway Rolling Stock. Acta of Turin Polytechnic University in Tashkent, 9(3), 104-109.
26. Хромова, Г. А., Мухамедова, З. Г., & Юткина, И. С. (2016). Оптимизация динамических характеристик аварийно-восстановительных автомотрис. Монография. Научный журнал:«Fan va texnologiya», Ташкент–2016.–253 с.[In.
27. Мухамедова, З. Г. (2015). Динамическая модель для исследования продольных колебаний главной рамы электровоза с учетом установки демпфирующего поглощающего аппарата в автосцепке. Известия Транссиба, (2 (22)), 18-23.