

A SEVEN CENTURY OLD CHANNEL IN AZARBAIJAN

Navid Basseri¹, Kaveh Bijad², Farid Ghassemlou³

ABSTRACT

During the short period of Ghazan khan's government, the seventh king of Ilkhanid Empire (1293-1303 A.C.). There were some efforts to improve economic and social condition under Ilkhanid's government. These adjustments and revision actions were in the follow of slump, declining economy and decadence which happened after Mongol attack to Iran. After the destruction of economic infrastructure and massacre of Iranians and during the first wave of attacks, in trace with that menace society by starvation and epidemic disease. In this time Ghazan khan begun his adjustments and correction of tax flow. For this purpose he started to lease the land for long time period. This method named Siorghal. He tried to equalize unit and weight measuring system. It is also amazing that in this time, paper money issued this happen for first time in the world after publishing in china. Another infrastructure task of Ghazan khan was improvement of agriculture condition. He ordered to repair irrigation channels. This channels ruin after attack of Mongol to Iran and set aside because of poor maintenance and bad management. In category of repair and development of channels, one set is Parchi channels and their network. These channel located in Azarbaijan in North West of Iran at Ghotur River. The length of Parchi is about 30 kilometers and their duty are convey and provide water for irrigated land under these channels that estimated to be about 3500 hectares. In compare with today scales, design and build and maintain such a long channel is important by any way structure and maintain. This set is a great task in view point of engineering. In this article, after a short report from Ghazan khan adjustments in repairing and managing of channel and Qanats, authors will introduce Parchi channel and present the hydraulic characteristics of it. There will be also a glance to Khoy and its history.

1-INTRODUCTION

Along Silk Road and in the north west of Iran at Azerbaijan province a small city placed that named Khoy. This region is important geographically; historically and also important in agriculture product. Among long history of this city so many trade journeys, troops transport and war happen here. This region from west is neighbor to

1- Faculty of Iranian Research Organization of Science and Technology, Tehran

2- A.K.S. Consulting Engineer

3- History of Science Dept. Encyclopedia Islamic Foundation ,Tehran

turkey and in the west neighbor to east Azerbaijan province and at the north near to Azerbaijan country Armenia and Nakhajavan. Khoy city consist of five parts that named Ivoghly, Chaipar, Safaeieh, Ghotour and central part. from geographical sight Khoy placed in the vast prolific region that surrounded by high mountain because of lower elevation of Khoy relate to around in local language this area named Khoy Chokhory that in Azeri language means deep and dishd. By elevation sight to this area height is decrease from west to east and south to north. With a little distance to Uremia Lake but in hydrologic sight this field is belong to Aras River and Caspian see. Khoy area in regionalism of country equal to 556093 hectares that the minimum level equal to 500 meter and maximum equal to 3622 meter

Khoy water resource provided from rivers, Qanats and deep wells. a river at Khoy environs that named Ghotour. This River emanates from turkey south mountains and after passing glen border between Iran and turkey come to Iran land.

For garden and champ irrigation of khoy and villages nearby several channel separate from river.some of this named as Shahr Arkhi, Badal-Abad arkhi, Beik Arkhi and Parchi. This channel get water separately from river beside that they may be in common in their path to farmland and garden they never each other in any reach of channel. One of the most important channel between these channel is Parchi this channel separate nowadays in place of Sonour diversion dam from Ghotour river. Based on an unwritten intense tradition among local people that Parchi channel have seven century age, despite of holly number seven outers of this article try to find out the archaism of this channel from cumulative evidence. Parchi channel has duty of providing water for Parchi village and area path to this village.In channel trajectory some building and one bridge seen that belong to bygone.

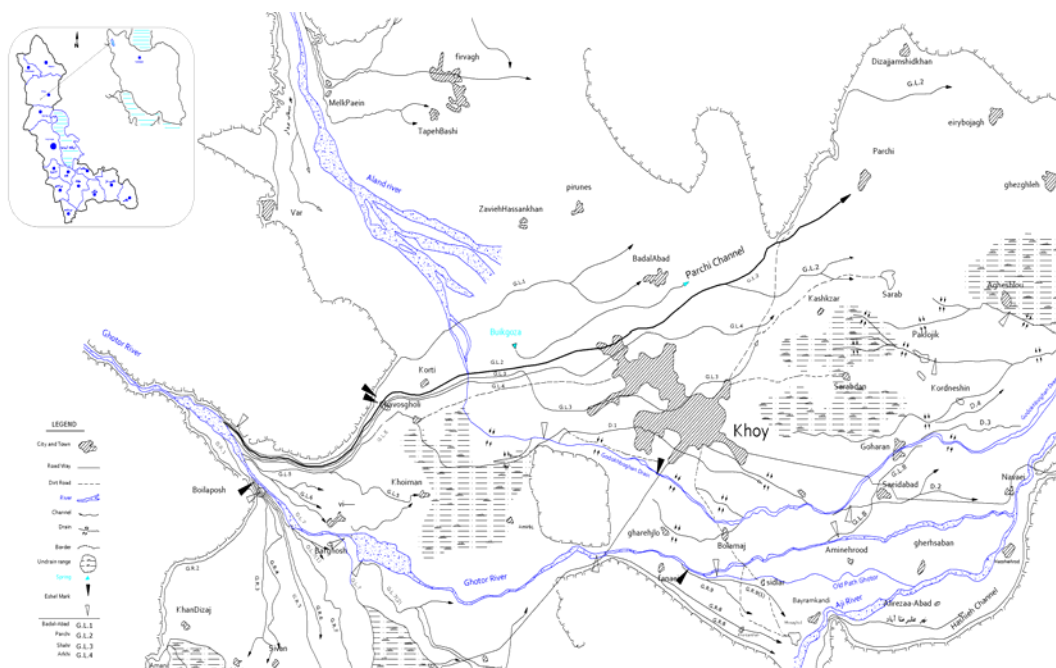


Figure 1- waterway plan of Khoy

In outers opinion of this article Parchi channel is one of miscellany channel work that done by Ghazan one of Iran Ilkhanan in years (1293-1303). Notwithstanding of many local and territory historical written about this time and scrutiny carefully but all historical source don't mention any thing about Parchi channel and related channel on Azerbaijan rivers due to this reason outers decided account for this hypothesis

1-Based on above writing at this area people have very strong verbal tradition and they believe that this channel construct seven hundred years ago at Magnolia Time. Important note that must be mentioned is nomination of place. In this area one of the rivers called Ghazan River the name of Ghazan khan ruler of Mongol in Iran at that time

2-Due to available evidence Parchi village is very ancient and parchi's people have occupancy life style and they lived there by planting and farming and almost they hadn't another way for reaching to water unlike Parchi channel and two or three Qanats. Nevertheless surprised about few number of structural construction from one side they hadn't enough reach and in other side this area have large earthquake that destroy many time all city and village. It is said verbally after one of earthquake from south gateway, north gate way had been seen and the last and most reason is number of war and troops transportation from there.



Figure 2- Khaton bridge

3-Ghazan rule in perilous time from Mongol government to Iran. Destroyed agriculture texture and economic infrastructure, insufficient maintenance of Qanats and dredging of channel network cause agricultural condition totally ruin. Ghazan notice to this qualification and decide do something. He with his wise assistant rashealdin fazloalah proceed some doing for improvement of Iran condition that will mention. This proceeding similar to construction of Parchi channel. some of these action are consist of diversion of channel from some famous river for example he ruled to diversion water from Dejeleh and Forat and Karoon for increasing efficiency in agricultural field.

Main question that must be reply is based on dimension of Parchi for what reason in no historical reference we don't find any thing about Parchi channel and all history source are silent about Parchi channel first reason can put on table relate to amount of water that Parchi convey to farm and second reason is writing resource poverty and historical document that existence in Khoy area whereas several important historical and geographical documentary reference after Ghazan time like Mobarak Ghazani Tarikh Vasaf and Nezhatoalgholoub Hamdollahe Mostofi report some happens, works and constructions about important city and state like Gilan, Rey and Esfahan and define history about that time.

2-GHAZAN REFORM

Ghazan govern in time that first set of Mongol attack finished. In first attack period from years 1283 A.C. and after first Mongol offense during downfall and ruin of city and village some Mongol treatment cause dimension of catastrophe become manifold. The new Mongol governor unfamiliar with principal technique in agriculture that contributes to Iran mature economy in contrast with morale rancher and nomad life of Mongol raider. Erroneous overtax naught rest of Iran economic infrastructure.

After this faults Mongol governor find out that a ruin country isn't good placed for administration. Ghazan ruling period belong to second period in the years. when sultan Abosaeed died and Ghazan, Oljaieto and Abousaeed Dominated. Ghazan with Rashidaldin (life 1247-1317 DC) guide try to rehabilitation destroy economy. Among the rest of reformation Ghazan done equalization of weights and dimension. Several weight and dimension vogue locally and cause many problem in trading with this based in year 1301 he ordered to equalized all weight by making some iron weight and send to all regions of country for make trade off with this weight. In trace of this reformation he order to register all estate transfer must be done with document and theme. For unique document registration this registration done after washing the last document and write new one with present of judgment and theme and they certify new document this rule is set because all estate have one landowner and one document. Also in tax gathering Ghazan set some new rule. He order to adjust old tax gathering law named Siorghal for land owner and tenant that is a Mongolian tradition. He order gather tax only two time in year in spring and autumn and all other tax omit for in this way for increase interest make commerce tax half.

One other work that done by Ghazan was organized financial turnover. He order make new unity coin in all country with same alloy and try prevalence bill for financial use. This bill in year 1294 D.C. available instead of coin and named Chav. At Mongol period this rectangular shape with some written in Persian and Mongolian propagated and cost from half Dinar to ten Dinar. From that point this Chav written by hand and set rule for cheater that killed with each member of their family and their possession lockup by government. Chav currency lead to a great inflation that an ancient country that ever had seen. After this inflation Ghazan ordered to gather all bill.

Without reformism action in agriculture and water resource that done by Ghazan it seems other action didn't have any success to improve people livelihood. Despite this action they didn't get strong to solve their problem. Based on writing of historian from this period in year 1298 A.C a great drought happen in middle period of Ghazan government that cause from deficit of rainfall. according to Rashialdodin Fazloallah in his written Tarikh Mobarak Ghazani that similarly repeated by Vasaf Alhazar this drought kill a large number of people and price of bread rise several time also according

to this historian writing after drought starvation dominate and in follow cholera become epidemic in large region of Iran. Fazlollah also reported only from this disease several thousand of people died in Shiraz.

Ghazan and Rashid found out that if they want going out from problem they must revised in irrigation and convince of water and regenerate land ownership. According to experience that gather from century Iranian people take the water for their need by two way first by Qanat and second by river network. For dredging Qanat and action that they done we know something. For example Rashid in several place in his writing mention that Ghazan eager to dig and dredged Qanats. In conveyance field that connect this article to parch channel it can be counted by two samples from most important action that they did. one of this about digging a channel that order by Rashid to take water from Dejeleh river and the same one done on Forat river. This knowledge about this conveyance channel gather from letter that Rashid written to his son, Jalaleadin the ruler of Rome. In one of this letter he order to his son on Forat river nearby Maliteh city dig a channel that convey water behind dam that construct on Forat river for this aim and irrigate lands nearby this city and after all convert extra and drain water to Forat river.

The same project must be done on dejeleh river nearby Mosel city that conveyance channel almost length 160 km.

Petroshefski counted these actions as the most important perform that done by Ghazan and Rashidoldin for rehabilitation of Iran irrigation system and agriculture base.

It seems that Parchi channel is the same project that have done on Dejeleh and Forat river but this river isn't famous as other and cause to prevent the construction of this channel come to historical book in Mongol period and then after That in Iran.



Figure 3 Ghotour river in Sonour

Of course this probable that Parchi channel construct along ages but regard to this subject this channel must be construct for convey water to Parchi village and nearby with other hydraulic slope and it isn't useful that get water from here from this high

level position to send water locally, and in other side it doesn't need to construct with this dimension.



Figure 4 Parchi width view

Parchi channel has 30 km long and according to its slope and soil texture has different width from 7 to 3 meter and provides water need at least for 3500 ha downstream farm and garden. In this land cultivate sunflower wheat oily nuts and others.

Quantity of water use depend on right of use according to handwritten between villager and this water belong to them hourly.



Figure 5 Enter sediment to Parchi

3-HYDRAULIC PROBLEM OF PARCHI CHANNEL

Parchi channel to almost 30 years ago was only water provider for convey water to Parchi village farm land, after several dormant years and destroying tradition land management and after land reformation and situation of inefficient modern management that doesn't relate to cultural local society this channel set aside not completely but without any maintain until 15 years ago construct a diversion dam on sonour placed because of faulty design and entering sediment to Parchi channel this diversion dam can't do its duty and moreover seriously damage to nearby road and enter sediment to channel, after that people decide to destroy this diversion dam and build temporary dam like the last they could convey water to their farm land.

According of entering sediment to Parchi channel, bad maintenance, siphon clogging Parchi channel will died.

As mentioned Parchi channel has duty to covey 4 cubic meter to 3500 ha of Parchi villager farm land and more over to this channel three other channel convey water parallel of this channel without any unit management and separate in downstream farm land never gather together these channels in common path and make good lining for these channels and villager also prefer bad separate channel to nothing.

With digging well and deep well along last years in this area and come down the water subsurface almost all Qanat dried and farmer by deep their well try to get more water.

Nowadays wells and its equipments outwear and the wells slump down every day and it seems only one way can save water for them is regenerating Parchi channel some of farmer get this point and try do that lonely and owned budget that lead them to battle with each other and engaged them with hatred

4-SUMMERY AND CONCLUSION

Despite of long history behind water conveyance facility in parchi channel nowadays it needs use with good management and care. In long time it have shown people use this facility have best responsibility to that and government can make this situation better by organized them. One of the best formations is user. The user after formation around their requirement can get guide for better doing and using their potential effectively

BIBLIOGRAPHY

1. Haj Mirza Hassn Hossaini Fassai, *Farsname Naseri*, ed.M.R,Fassai,Tehran. 1367/1988.
2. Hamd ullah Mostofi, *Nuzhat al-Qulub*.ed. Dabir Siaghi,Tehran, 1336/1957.
3. Rashid al-din Fazlulah Hamadani, *Tarikh Mobarak Ghazani*, ed. K.,Jan. London,1958.
4. Idem. *Jami al-Tawarikh*, Bako,1957.
5. Petroshevsky,I,p,*Kishavarzi va muanasebat e arzi dar Iran ahd e mughul*.2. vol.tr.into Persian by k.kishavarz, Tehran,1357/1978.

6. Idem. The socio- economic condition of Iran under the il-khans. *Cambridge history of Iran*, vol.5. Cambridge. 1968.
7. Shahb ad-din Vassaf Shirazi, *Tarikh Vassaf*, Tehran, 1338/1959.
8. Roshan Ali.A, Hydroclimatology Ghotour Basin, Msc. Thesis, 1998
9. Anonymos, Sedimentation report of Ghoutor river, 2004
10. Oskoei M et al Limnologic and Ecologic evaluated of Gotour, 2003
11. Conversation with Mr. Talebi, 2007
12. Conversation with Mr. Mehdizadeh, 2007