

FOIA MARKER

This is not a textual record. This is used as an administrative marker by the William J. Clinton Presidential Library Staff.

Collection/Record Group: Clinton Presidential Records
Subgroup/Office of Origin: Council of Economic Advisers
Series/Staff Member: Subject Files
Subseries:

OA/ID Number: 21624
FolderID:

Folder Title:
Kazakhstan - Global Climate Change [4]

Stack:	Row:	Section:	Shelf:	Position:
S	21	4	11	2

WELCOME TO ALMATY

TABLE OF CONTENTS

	Page
HISTORY OF KAZAKHSTAN	1-3
MAP INFORMATION	4
TRANSPORTATION	5-6
RESTAURANTS IN ALMATY	7-8
ENTERTAINMENT	9-13
HEALTH CONCERNS IN KAZAKHSTAN	14-18
SECURITY ISSUES	19-21
SHOPPING IN ALMATY	22-25
USEFUL PHASES IN RUSSIAN	26
CURRENCY CONVERSION	27

HISTORY OF KAZAKHSTAN

Before The 18th Century

The original people of Kazakhstan were Turkic nomads who traveled with and lived in yurts (circular tents made of felt) while herding their livestock over the steppes. These first Kazakhs settled in the region beginning in the eighth century A.D. The area was subject to several invasions in later years, most notably by Genghis Khan and the Mongols in the thirteenth century. These invaders settled permanently in the region and intermarried with Kazakhs.

The famous "Silk Road" trade route, which brought valuable goods and spices from the East, stretched from Istanbul through areas of Iran, Turkmenistan and Kazakhstan to China. This was the route which adventurers, such as Marco Polo, took to reach China.

Like most Turkic peoples, Kazakhs follow Islam (the Sunni Muslim sect), but its influence is much less strong with Kazakhs than with other Central Asian peoples, such as the Uzbeks. The traditional Kazakh occupation is animal husbandry (sheep, cattle, horses and two-humped camels). A Kazakh was considered rich if he had a large herd of cattle and a large extended family to tend it.

The Russian Empire

Kazakhstan became a portion of the Russian Empire in the early eighteenth century, under the Tsaritsa Anna (the second Empress of Russia, after the reigns of Peter the Great and Catherine the Great). Some Kazakhs resisted, but others sought Russian protection against neighboring groups. In the 1830s the Russian government began to build a system of forts on Kazakh territory. Amongst these was the settlement of Fort Verniy, which was later renamed Alma Ata. Later in the nineteenth century Russians began to industrialize Kazakhstan, and promote stationary agriculture. Kazakhs ceased to be a nomadic people at this time.

Kazakhstan was a place of exile for political and intellectual dissidents, such as Fyodor Dostoevsky. By World War I, the Kazakhs had their own political leaders and their own small industrial society. While Kazakhs were initially exempt from conscription for the war, in 1916, they were conscripted into an auxiliary army. This sparked a rebellion.

After the February 1917 Revolution in Russia, Ali Khan Bukeikhanov, who commanded an army called the Alash Orda (or horde), led a revolt in Kazakhstan and demanded independence from Russia. When the Civil War after the October Revolution occurred, the Alash Orda (or horde), had to fight both the Red (Bolshevik) and the White (monarchist) armies. After the Reds won the war, the Alash Orda was unable to continue fighting and accepted Soviet rule.

The Soviet Period

In the 1920s, much of the new Soviet Union experienced famine. Kazakhstan suffered greatly during this period, with many Kazakhs dying and large numbers of the population fleeing to Afghanistan and China. By the late 1920s, Soviet rule was firmly established in Kazakhstan, and the period of collectivization of farming

commenced here as well. This radically altered the Kazakh way of life, and even more Kazakhs fled the country. Like many local Communist movements, Kazakhstan's was devastated during the Stalinist purges in the 1930s. The cumulative effect of the famine, forced settlement, collectivization and purges was a loss of approximately half the Kazakh population.

Beginning in the 1930s, through forced policies, Kazakhstan began to industrialize. To provide skilled labor for the process, many people were moved to Kazakhstan from other areas of the Soviet Union, notably Russia and Ukraine. The Soviets under Stalin also forcibly relocated many other ethnic peoples to Kazakhstan, such as Volga-Germans, Crimean Tatars, Poles, Koreans, and Ukrainians, particularly during the Second World War. Many Azerbaijani and Chinese Uigur Muslims also moved to Kazakhstan at this time.

In the 1950s, the "Virgin Lands" campaign was launched by the Soviets to cultivate more of the vast lands of Kazakhstan. This was initially to increase grain production in the traditionally sheep-grazed areas of northern Kazakhstan. The results of the campaign were environmental damage to many areas in the north, and further disruption of the Kazakh way of life. People were forced into collective farms and away from the traditions of raising livestock and living in extended families. This also affected those who were already urbanized.

Kazakhstan also became a setting for two important developments in the Soviet Union during this decade: the space program and nuclear weapons. The space program was established at Baykonur, which brought another wave of immigration from other areas of the Union. Many government and military sites were also established, including Semipalatinsk, where nuclear testing was held, and the missile testing sites of Tyuratam and Saryshagan.

Over the years, the central hierarchy of the Communist Party gradually opened to Kazakhstani participation. One Kazakh, Dinmukhamed Kunayev, who led Kazakhstan's Communist Party from 1951 to 1986, became a full member of the Politburo of the Communist Party of the Soviet Union (CPSU).

The Collapse of Communism

In 1986, after Mikhail Gorbachev assumed the position of General Secretary of the CPSU, Moscow appointed a Russian, Gennadiy Kolbin, as leader of the Communist Party of Kazakhstan. This led to the first large-scale, violent revolt against Soviet rule of Kazakhstan: on December 17-18 riots broke out in Alma Ata. Before the violence was brought under control, two hundred people were killed and hundreds more arrested.

Kolbin served two years, but was replaced in 1989 by Nursultan Nazarbayev, an ethnic Kazakh. When a coup was attempted in Moscow in 1991 to remove Gorbachev and restore conservative control over the central government, Nazarbayev was one of the few political leaders to speak out publicly against the revolt. As the USSR dissolved to become the Commonwealth of Independent States, Kazakhstan, like many Central Asian states, did not initially support the move. Kazakhstan declared itself an independent state in December 1991.

Recent Developments

While the government in Kazakhstan has remained very stable in comparison to other post communist states, its road toward democratic and economic reforms has not always been smooth. Politically, Nazarbayev became the first president of Kazakhstan in a 1991 election in which he ran unopposed. A new constitution was introduced in 1993, which guaranteed political and human rights reforms. But there have been problems as well. In 1994, the first post-collapse legislative election held in Kazakhstan was flawed by fraud and misconduct during the election process, particularly in terms of registering candidates. In 1995, the president dissolved parliament, promulgated a referendum extending his term of office to the year 2000, and then promulgated a new constitution providing for a very powerful presidency. Independent organizations, such as Kazakh NGOs, political movements, and independent trade unions, have had to face obstacles functioning in the new country.

Economically, Kazakhstan has had mixed success. Privatization is going well, but Kazakhstan's immense natural resources--particularly in oil and gas--have not yet brought a higher level of prosperity. Although the rise in inflation stabilized in 1994, the average salary has little buying power. Agriculture is routinely threatened by a lack of fuel to assist in tending and harvesting the crops.

Kazakhstan has an ethnic balance of approximately 45% Kazakh, 38% Russian, and smaller proportions of over one hundred ethnic groups, notably Uzbek, Tatar, Ukrainian, German, and Korean. While nationalism has not been a significant problem after the Soviet collapse, there is a movement to assert Kazakh culture and language in Kazakhstan. This is problematic, as most of the people in this country use Russian as a common language. Migrations of certain non-Kazakh ethnic groups, especially Russians and Germans, out of the country have occurred since independence, due to both economic and ethnic disadvantages in Kazakhstan.

Kazakhstan has been a player in the international political realm in several ways. Because of its use during the Soviet period as a nuclear testing site, support of nonproliferation has been particularly strong here, with such groups as the Nevada-Semipalatinsk movement, which have not only supported the elimination of nuclear weapons by Kazakhstan, but have urged other countries to follow suit, such as Ukraine, Russia, and China. Kazakhstan is also active in efforts to correct the evaporation and salinization of the Aral Sea, which is located in both Kazakhstan and Uzbekistan.

MAP INFORMATION

A map of Almaty is included with this Welcome Kit. This map outlines the locations of most government and diplomatic buildings as well as the locations of hotels, churches and museums.

Remember: In Almaty, although most people would assume that the mountains and uphill slant of some streets point northward, in fact it is just the opposite. Face away from the mountains in order to face north.

Street Names: When asking directions in Almaty, be aware that many street names have been recently changed, and will differ from those on old maps or in residents' memories. A list of both old names and the changes are below:

Old Names

Kalinina Street
Kommunisticheski Avenue
Sovetskaya Street
Komsomolskaya Street
Oktyabrskaya Street
Gorky Street
Dzerzhinsky Street
Kirova Street
Pasternak Street
Pravda Street
Proletarskaya Street
Rudnev Street
Kremlevskaya Street
Kazachya Street
Kosmonavtov Street
Mira Street

New Names

Kabanbai Batyr Street
Ablai-Khan Avenue
Kazibek Bi Street
Tole Bi Street
Aiteke Bi Street
Zhibek Zholy Street
Nauryzbai Batyr Street
Bogenbai Batyr Street
Makatayev Street
Altynsarin Street
Zenkov Street
Brusilovsky Street
Maylin Street
Grigory Potanin Street
Baitursunova Street
Zheltoksan Street

TRANSPORTATION

There are four methods of transportation in Almaty: on foot, by car, by taxi, and by public transportation, such as buses, trams, and trolleys. Construction of a subway system has been stopped for lack of funds, with no prospect of an early renewal. The latest budget crunch has also hit the present public transportation system, and there are now fewer vehicles running in the system.

Walking: Much of the downtown area is accessible on foot although this takes time and is difficult during the winter, when snow and ice can make it dangerous. Comfortable walking shoes are a must in Almaty, and a pair of rubber-soled boots with good traction are advisable for the winter months. Because sidewalks are irregular and man holes are unstable, it is recommended that pedestrians carry a flashlight at night.

By car: Car traffic in Almaty has grown in recent years, due to increasing incomes of some residents. Traffic patterns follow an organic form—erratic driving techniques require drivers to act defensively. There are two rental companies in Almaty. Chauffeurs accompany the rental vehicle. The rate for the rental of a vehicle includes the chauffeur.

By taxi: This is often the best option if you do not have access to a car, particularly after dark. You can call for a taxi by dialing 058 or 048. Do not assume that the operator knows English. Negotiate the price before entering the cab. Usually this method of transportation is more expensive but the improved security is worth the expense. Gypsy cab services are a common method of transportation utilized by most locals. While the Embassy does not recommend this as a means of transport, precautions such as taking cabs without other passengers, using this method of transportation only during daylight hours, and only using vehicles that are in good condition, are simple guidelines for a more secure transport. These cabs usually cost 100 tenge for an in-town 10-12 block distance, 200 tenge for trips to and from the inner city area to the surrounding area (such as between the Embassy and the Astana, Hyatt or Ankara hotels), 500 tenge for a trip to the airport. It is best to call ahead for a taxi, as getting one on the street is not always possible or advisable. In general, do not get into a taxi that already has a passenger, or a "driver's buddy" - this is often a way to get robbed or mugged, after being driven to an out-of-the-way location.

Public transportation: Buses, trams, and trolleys in Almaty are often crowded, especially during rush hours (7-9 a.m. and 5-7 p.m.). If you decide to use this option, be advised to keep a good hold on your belongings. Slashing of purses, totes and pockets is common. Maps showing routes for public transport can be found in hotels and bookstores in Almaty (the bookstore two doors north of the Embassy on Furmanova has numerous maps). It is a good idea to plan where you want to go and which streets will get you there, before you use the system. You can buy a ticket on board the vehicle by giving money to the driver, or ticket collector; often you may have to give the money to someone ahead of you to buy the ticket, and then they pass the ticket it back. Stay as close to the exit doors as possible, as you may be

forced to move through a large group of people when the vehicle approaches your stop.

RESTAURANTS IN ALMATY

Restaurants in Almaty have increased in number and quality of food and service over the past few years, and today Almaty can provide a fairly wide selection of cuisines at various prices. Menu prices tend to be in dollars, but payment is always in tenge. Many restaurants are closed on Sunday. The restaurants listed in this packet are the most popular among expatriates. Quality of food and service can vary; today's "best" restaurant can be tomorrow's disaster. Over the past year or so the following restaurants have been fairly consistent. No matter where you eat, keep in mind:

(1) Even though the menu may list a dish, it may not actually be available at the time you order it. It's always best to ask the waiter if it is available, and have a second choice in mind.

(2) Tipping in Kazakhstan does not follow any specific formula; it may be added to your bill, or you may leave a 5-10 percent tip.

(3) Some restaurants require reservations.

(4) Restaurants do not usually stay open past 11 p.m.

Restaurants

The Otrar Hotel has three restaurants, one with Kazakh cuisine the other with Pakistani cuisine. Kazakh cuisine consists of sliced cold meat appetizers, manti are meat filled dumplings, beshbarmak is a meat and pasta dish; kebab (called shashlique), and rice dishes. The Pakistani restaurant offers consistently excellent dishes, a fixed price buffet (\$25) in a comfortable environment. The Tequilla Sunrise offers Latin cuisine and is a popular dance spot on weekends.

The Astana Hotel has an excellent French restaurant. Reasonably priced.

The Hyatt Hotel has three American cuisine restaurants. The service and atmosphere is formal. Expensive.

The Ankara Hotel has three continental cuisine restaurants and one informal café. Expensive, but the quality is unsurpassed.

Paradiso Restaurant and Bar, located at 17 Abai between Dostyk and Furmanova, open 12:00-24:00, 61-69-20. Nice environment, set price (\$25) business lunch, also guests may order off the menu imported steaks and seafood, well-trained staff. While not inexpensive, it offers a good value for the price.

International Business Club, 86 Gogol (between Nauryzbai Batyra and Zheltoksan Streets), 32-27-01. Good European style food and service. Very pleasant atmosphere. Lively happy hour on Friday nights. Moderate to expensive. Open Sundays.

Cafe Brno (Czech Restaurant), 64 Zhibek Zholy88 (directly behind the Hotel Otrar), 33-90-17/33-47. Solid Czech food, moderate to expensive prices, features good Czech beer. A European-style atmosphere and consistently good food and service make this a prime place for a quiet lunch/dinner.

Adriatico, 90 Mechnikov street (corner of Zhambul Street), 67-29-44. Possibly the most elegant dining atmosphere in Almaty, with a formal dining room and entertainment. Excellent Italian cuisine. Reservations are a must. Expensive.

Italian Cafe, second floor of the Kazak Business Center, 85 Lenina, across from the Hotel Kazakhstan, 62-25-20. This restaurant has pasta dishes and Italian entrees as well as steaks. Informal atmosphere, few tables. Inexpensive.

Mughalia Pakistan, 58 A Makataeva (Ablai Khan) 12:00-24:00, 33-11-82. Tasty, authentic Pakistani food served buffet style (\$25 per person) in a small, attractive room located on the first floor in the Otrar hotel.

Tomiris, 48 Lenina (between Shevchenko and Kurmangazy Streets), 61-68-07/61-39-97. Turkish Restaurant with live chamber music most nights. Very pleasant atmosphere and generally good food. Expensive. Open Sundays.

Turkish Cafe, second floor of the Central Market building, Pushkin and Zhibek Zholy streets. Their version of "fast food" includes soups, kebabs and other quick, inexpensive items. Very informal. A good place for a quick lunch (often not open on Saturday).

Peking, 52 Zenkov Street (corner of Bogenbai batyra), 54-31-07 or 54-31-08. Good Chinese food and service. Formal, expensive. Open Sundays.

Chinatown Restaurant, 136 Bogenbay Batyr street (corner of Ablai Khan Street), 69-19-71. Centrally located, this restaurant serves Cantonese cuisine. Moderate.

Boso, 151 Kunaev at Djambul, 12:00-23:00, 62-17-23. Al dente Cantonese and Szechuan dishes are served in a room with a contemporary decor. Moderately priced.

BBQ USA, 44 Shevchenko at Tulebaev, 69-63-57. Hamburgers, steaks and salads served in a relaxed setting. Moderate.

Country Bar and Grill, 150 Raimbek at Nauryzbay Batyr, 39-05-14. Excellent pizza, microbrew selections, country western music, casual setting. Inexpensive.

Capos, 32 Abai at Seyfullina, 12:00-1:00, 67-57-85. Pizza, pooltables, a popular hang-out place amongst expats. Moderate.

St. Georges Café, 64 Panfilova at Makataeva. 33-10-42. American café cuisine, casual setting, inexpensive western breakfasts (\$5). Live music in the evenings. Moderate.

ENTERTAINMENT

Almaty has museums, theaters and night spots. Almaty's location near mountains, canyons and rivers permits outdoor activities and trips to areas offering a uniquely local character to the adventure traveler. If you have the time, you might consider trying both indoor and outdoor amusements the area has to offer.

Museums and Galleries

Central State Museum. Corner of Furmanov and Satbayev Streets, near Republic Square. This is primarily a history museum, with exhibits that detail the development of Kazakhstan and its people from the Bronze Age to the Russian Empire, the Communist Period, and afterward. The museum also has exhibits of Kazakh handicrafts, and three souvenir shops where rugs, jewelry and other objects are available for purchase. Open 9 a.m. to 6 p.m., however, the visitors must enter by 5 p.m. Closed Tuesdays. Ticket prices vary with exhibit. Telephone number: 64-23-90.

Kasteev Museum of Art. 30A Satbayev Street, across from the Hyatt Hotel. Features traditional, modern and contemporary art of Kazakhstan, other Central Asian and CIS countries, and has exhibits of 19th and 20th century French, Italian art. Has a souvenir shop which has Kazakh and Russian art products (jewelry, paintings, etc.) for sale. 30 tenge tickets are sold at the door between the hours of 10 a.m. and 6 p.m., visitors must enter before 5 p.m. Closed Mondays. Telephone number: 67-43-42.

Museum of National Musical Instruments. Panfilov Park, behind the memorial to Kazakh WWII veterans who fought to protect Moscow. The museum was built by the architect Pavel Zenkov who also designed the cathedral in the central area of the park. The museum exhibits traditional Kazakh, Central Asian and Russian instruments from ancient times to the present. Special tours in English: ask the cashier. Open Tues-Sun., 10 a.m. - 6 p.m. Telephone number: 61-63-26.

Museum of Geology. 69a Kabanbay Batyr Street. Features a collection of stones indigenous to Kazakhstan. Around the corner on Dostyk Ave. there is a museum shop where gem products are sold. Open 9 a.m. to 6 p.m., closed Sunday. Telephone number: 61-86-63.

Museum of Archeology. 44 Dostyk at Shevchenko. This museum contains a collection of shards and ceramic artifacts from the 3rd century A.D., as well as a life-size replica of the Golden Man, a 5th century B.C. Saka warrior found in tombs near Almaty. Open daily 10:00 a.m. - 6:00 p.m., Telephone number: 61-85-85.

Museum of Books. 94 Kabanbay Batyr St. at Kunaev. This museum contains quite a collection of interesting pre-19th century books, including illuminated manuscripts, as well a collection of uniquely bound books reflecting the cultures which have resided in Kazakhstan. Open weekdays, 10:00 a.m. -5:00 p.m., Telephone number: 62-11-04.

Music, Ballet, Drama and Fun

The theaters in Almaty usually have a season from fall through midsummer. Other theater groups and/or events may be featured during the summer months.

The Abai Theater of Opera and Ballet. Panfilov and Kabanbay Batyr Streets. Currently closed for renovation, consult the Theater of the Republic listing (or visit the box office at Abai and Dostyk), for ballet and opera performances. In the past, the theater offered a repertoire of traditional and modern opera and ballet (Russian and local composers/choreographers are featured as well as favorites from abroad). Check theater or newspaper for performance listings. Telephone 62-79-34/62-83-91.

Central Concert Hall - Tole Bi and Eighth of March Streets. Offers classical music from favorite local, Russian and foreign composers. Check the theater or newspaper for performance listings. Telephone 61-58-80.

Conservatory, Ablai Khan at the Karasay Batyr intersection. Concerts almost nightly, at 18:00. Usually free. Telephone 67-90-87. 67-90-87.

Lermontov - Russian State Academy Drama Theatre. Kurmangazy and Panfilov Streets. Check theater or newspaper for performance listings. Telephone 62-82-73 and 62-82-14.

Auezov - Kazak State Academy Drama Theater. Between Abay and Kurmangazy Streets, next to Zhandosov Street. Check theater or newspaper for performance listings. Telephone 67-53-00, 67-50-64.

State Russian Theater for Children and Youth. Ablai Khan and Mametova Streets. Features plays from Russian and Kazak folklore, plus other children's stories. Check theater or newspaper for performance listings. Telephone 32-38-49.

The Kazakh State Circus. Abai and Zhandosov Streets. This runs year round. The shows are often exotic with dancing and contortionist acts which would appeal to all audiences. Telephone 47-32-73.

Gorky Park. Entrance on Gogol Street, at the east end. Has a number of paths to walk on and enjoy nature, a flea market (icons, medals, soviet memorabilia), some rides, a lake for boating, and a zoo. A very popular spot on the weekends.

Medeo. Dostyk Avenue winds up into the mountains. A summer and winter entertainment center, Medeo hosts skating and other winter sports for half the year, and other events (such as the Asia Song Contest) during the summer. This is a year 'round favorite with Almaty residents.

Movie Theaters

Unfortunately, the number of movie theaters in Almaty is limited, and they show primarily "B" films. VCRs and video rental places in Almaty have become more popular as a result, because of availability of better quality, more recent films.

Video Rentals—English language multi system. One company, Springbok Investments Ltd., is located beside 32 Abai (Capo's Pizza), at Seyfullina. They are open from 12:00 p.m. - 1:00 a.m. daily. Call 67-57-85 for details on rentals.

Cafes/Clubs

Almaty has a number of indoor and outdoor cafes. The city sports no less than six microbreweries offering good quality German and English style beers at reasonable prices. There are also a growing number of music and dance clubs in Almaty.

Alanar Jazz Club and Disco - 50 Zhibek Zholy, telephone 63-14-26. Opens at 21:00. Live bands most nights, followed by a disco.

Tequila Sunrise - Otrar Hotel. While also a restaurant this is a popular dance club on Friday nights. Dance lessons are free on Wednesday evenings at 19:00.

KIMEP Dance Club - Abay and Lenina Streets. Open daily 21:00 - 02:00. This is a favorite as there is a diverse crowd, a range of dance (non-techno) music. Darts on Tuesday and Thursday evenings.

Masterbrew Microbrewery - Located in the Samal residential complex directly behind the Central Museum (Furmanova just south of Satpaeva). Features as many as four boutique brews.

Edelweiss Microbrewery - Located on Aiteke Bi just west of Baizakova, 42-34-03. A \$10 cover charge is required which covers all the home brewed beer the customer can drink.

Sports and Fitness

There are numerous options for those who wish to maintain a structured fitness program.

Daulet Health Club - 183 Shagabutdinova (just off Satpaeva one block east of the canal and the Kasteev Museum). Open 9:00-20:00. 67-20-69. Clean, lots of body building equipment, saunas, childcare and trained fitness staff.

Shooting/Target practice - Dynamo Stadium and fitness center. Located on Nauryzbai Batyr between Zhambyl and Shevchenko. 63-83-24.

Basketball - KIMEP Gymnasium (Abai and Dostyk) Wednesdays at 19:00 and Saturdays at 12:00.

Hash House Harriers - Meets Sunday afternoons at 3:00 in front of the Business Center located at Kurmangazi at Dostyk.

Golf - Interlux Country Club located at Alatau Sanitorium Kaskelenski district on Ryskoulov Road west of Almaty. Club and shoe rentals, driving fees, practice balls available. Telephone 54-97-66 or 54-93-97.

Camping and Hiking Possibilities

Almaty, situated in an interesting and unusual geographic zone, is close to mountain ranges tall enough to maintain glaciers year-round. Glacier fed lakes and steep river-valleys flank the city east to west. If you want to try a hike in the mountains, this can be as simple as taking a bus or a cab from Dostyk Avenue (take the 6 bus from the bus stop directly across from the Kazakhstan Hotel) up to Medeo or another spot along the road, and walking. The Maly Almaty river runs along this area, and the countryside ranges from steep, birch-lined hillsides to grass-and-wildflower filled foothills. Keep in mind that the elevation in Almaty is already high, and these mountains climb up rather quickly; take it slowly at first and don't stress your lungs or heart. More strenuous trips, such as to the glaciers, should not be attempted without a professional guide. Always wear sunscreen while hiking especially in the upper elevations, which offer less protection from the sun. Long pants and long sleeves, or insect repellent, is also a good idea. This will keep you away from ticks and stinging nettles.

Day or overnight trips out into the countryside are also possible; these can be done with outdoor (4x4) vehicles either on your own or through an outdoor travel group offering all inclusive travel packages.

AMS travel is one tour group popular for its dependable service, quality vehicles and attentive service (92 Panfilova at Aiteke Bi 62-39-53).

Karligash Makatova independently organizes trips for the expatriate community (36-58-88).

Kramds-Mountain Co., Ltd. Offers special interest and adventure tours in duration from a half-day to several weeks. Alpinism, heli-ski, horseback riding, stone and mineral tours, sport fishing tours etc. Telephone 63-12-07.

Salem Travel Co. Offers tours of the local area (Kok Tyube mountain, Medeo, Chimbulak, Kapchagai, Bolshoi Almatinski lake) and day trips from Almaty. Telephone 53-20-48.

Central Asian Tourism Corporation Also offers city tours, as well as organizes tours to other Central Asia cities such as Samarkhand or Bukhara, Ashgabad. Telephone 50-10-70.

Winter Fun

Snow begins falling in the Almaty area as early as October, and can last as late as April. Both Medeo and Chimbulak (the skiing resort behind Medeo, which can be reached by driving through Medeo and continuing on the road another 10 km) provide adequate venues for these activities. Equipment is available to rent, but if you come to Almaty during this period, you might consider bringing the appropriate gear with you. Sporting goods stores are equipped with a whole variety of gear to use in the snow, but supplies are limited and expensive.

Skiing at Chimbuluk Alpine Sports Center. Skis and other equipment are available to rent. Ski lifts cost 80 tenge round trip or 500 tenge for the day. Lifts are open between 10 a.m. and 5 p.m. daily. Call 33-86-24. A bus (no. 6) leaves the Business Center (across from the Hotel Kazakhstan) on Dostyk at Kalenina. Get in the queue early (7 a.m.) as this can be an excruciatingly crowded trip later in the day.

Alternative Ski sites - There are numerous "private" skiing areas which have simple tow lifts; these are often in out of the way areas that require a four wheel drive vehicle or a hike to get to them. One is located on the ridge over Prosveshenitz (follow Dostyk Ave. toward Medeo; the road to Prosveshenitz is on the right. From there, an hour hike to the ridge overlooking Medeo offers t-bar and rope tows). A second private ski area is located at the Alma Tau resort which is an hour's drive (10 minutes east of Almaty and then 45 minutes heading south into the Alma Tau valley/mountainous area--not to be confused with Ala Tau a resort 35 minutes west from downtown Almaty). A ski lodge with dining facility and guest rooms are available. Rental equipment is not available.

Ice Skating - Medeo is the site for a "world class" rink which has ice skate rentals on site. The hours are 10 a.m. - 5 p.m. on weekends, during the week the rink hours are inconsistent. In addition to the Medeo rink, there are several ice skating (natural, out-door) rinks in Almaty. Gorky Park has a stadium that it floods in the winter. Regular maintenance keeps the surface smooth. Ice skates are available but bring shoe laces as these are often lacking or cut short. Another rink located at Naurzibai Batyr and Shevchenko (Dynamo Stadium) has lights and a sound system over its frozen, flooded, ice skating-stadium facility. Both stadiums operate between 10 a.m. - 6 p.m. M-SU.

Horse drawn sleds - Outside of Almaty there are numerous farms with horses for rent. Two which offer sleigh rides through the low mountainous/fielded areas are through Victor by telephoning 50-74-08. His beeper number is 6826. A second company may be telephoned at 34-65-02 or 34-68-75 (Russian speakers).

HEALTH CONCERNS IN KAZAKSTAN

Immunizations

Adults should have completed their childhood immunizations (Diphtheria, Tetanus, Polio, MMR) and have had a booster preferably within the last ten years. In addition to this, the following immunizations are recommended: Hepatitis A, Hepatitis B, Typhoid, Rabies, Meningitis A&C, Tickborne Encephalitis, and Influenza (optional). Short-term visitors who will be spending their time only in Almaty and not hiking or traveling to remote areas should have at least the Hepatitis A, Typhoid, and Diphtheria/Tetanus vaccines updated before their travel.

Malaria is not a problem in Kazakhstan. However, malaria prophylaxis is recommended for anyone traveling to endemic areas. Some medications require that you begin prophylaxis two weeks before your trip. Check with the Medical Unit well in advance of taking a trip for details on Malaria prophylaxis or additional vaccinations which may be required.

Medications

The Embassy Medical Unit is stocked with a variety of medications needed to treat the majority of acute illnesses one might encounter in Kazakhstan. These medications are usually stocked in very limited amounts. This includes some over-the-counter medications. It is important to note that Department of State regulations state that an individual on any long-term medication for chronic illnesses is responsible for ordering and payment of those medications (e.g. medicines for high blood pressure, birth control pills, and chronic allergies). This also applies for any over-the-counter (OTC) medications. From time to time some OTC medications can be purchased locally at the dollar stores or local medical shops. Check with the Medical Unit for advice.

Precautions for Water and Food

Almaty has its water supplied through two sources, a large snowmelt reserve which services about half of the higher elevation in the city, and a lower network of 37 artesian wells which supply the lower elevation. Several tests (lead, fluoride, nitrate, bacteria) were run on several different water samples in 1995 and again in 1998 and were within normal limits. To be cautious the RMO recommends boiling or filtering drinking water or using distilled or bottled water.

Note: Water can be rendered completely safe to drink by boiling at a rolling boil for three minutes. (This includes killing bacteria, viruses such as Hep A, and cysts).

Milk is available in Almaty in several different forms. Boxed and bottled milk (some of which may be pasteurized) and occasionally powdered milk is available in a variety of stores and kiosks. Shelf-life milk from the West is usually available at Galaxy and other shops. Except in the case of shelf-life or powdered milk, the Medical Unit recommends that all other milk should be brought to the boil. This is of particular

importance at the present time as Brucellosis has recently been identified as a serious health problem in some local dairy herds.

Note: It is never recommended to drink unpasteurized milk from any animal species (cow, goat, sheep, horse, etc.). Simply bringing milk to the boil will make it safe to drink. However, if you are reconstituting milk powder with non-potable water, it will need to be boiled for three minutes first. Use the same procedures to prepare milk for use in making yogurt or other milk products. There is no simple solution for avoiding unpasteurized products when eating out. One should keep in mind that milk products such as ice cream, cheeses, sour cream, etc., may have been made from unpasteurized milk products and therefore cannot be considered 100% safe. Be advised that many expats living in Almaty consume the local sour cream, kefir, etc.; and, to the RMO's knowledge, no cases of illness have resulted.

In addition to the usual concern for the presence of bacteria, cysts, or other contaminants on fruits and vegetables, some questions have been raised regarding residual pesticides. The Medical Unit recommends that fruits and vegetables be washed with water before consuming, much the same as one would do in the USA.

A good variety of meat and poultry is available locally. You should be aware that although these products are inspected, the inspection process does not meet U.S. standards. Therefore, it is recommended that all meat and poultry be cooked well-done, ordered well-done in restaurants and eaten hot, so as to eliminate the risk of acquiring tapeworm, toxoplasmosis and trichinosis.

Local fish should be avoided unless their source can be clearly identified. Parasites in fish are not destroyed by washing, marinating, or smoking. They are destroyed only by thorough cooking.

Eggs should be washed well under running water and allowed to dry. Only eggs cooked completely through should be eaten. Be aware that local mayonnaise may contain raw egg.

Air Pollution/Irritants in Almaty

Seasonal allergies cause numerous complaints in the Almaty region particularly in late spring and early summer. While some of these complaints are attributable to the local cottonwood trees, pollens from various sources also make their contribution. Air pollution, most noticeable in winter, also contributes to allergy symptoms.

Medical Emergencies

If you have a life threatening emergency, first call the Marine Security Guard at the Post #1 at the Embassy (telephone: 50-76-27) who will alert the medical staff and call the ambulance.

For adult care, the Embassy uses the VIP Hospital Ambulances 62-1288. If for some reason you decide to call yourself, you must be able to speak Russian. You will need to give your name, identify yourself as an American diplomat, give your specific address, and describe the medical problem as clearly as possible. The ambulances

are staffed with an emergency room doctor and equipped with basic emergency equipment. This ambulance will take you to the Cabinet Ministry (VIP) Hospital/Polyclinic. As soon as notified, one of the Embassy medical staff and an interpreter will meet you at the hospital. When indicated, these facilities will be used for stabilizing the patient until a medical evacuation to the West can be arranged.

American Doctors in Almaty

DR. MARTIN BASSET
TEL: 40-67-72 (home/fax)
Diagnostic Center - 42-29-79
57 Auezova St. (between Kalinina & Jambula Sts.)
Cell phone: 8*2-90-00565

Dr. Basset is an American M.D. with board certification in Internal Medicine and Endocrinology. He works out of the Diagnostic Center three days a week (Mon-Wed-Fri) from 0900 to 1400. The Diagnostic Center is an outpatient facility with some laboratory and diagnostic backup.

ASIAN EMERGENCY ASSISTANCE (AEA)
11 Luganskava St.
Tel: 64-26-56
Cell phone: 8*2-90-00468

This facility is owned and operated by AEA, a multinational health care and medevac company with offices across Asia (headquarters in Singapore). The clinic is staffed by a Western-trained, English-speaking physician and local staff and is open 24 hours daily for emergencies. An English-speaking operator is always on duty. The clinic has lab and X-ray capability. Fees are at or above U.S. or European levels, and payment by cash or credit card is expected at the time of service. Call for further details.

Emergency Room Addresses & Telephone Numbers

1. VIP Hospital
139 Panfilov St., Almaty
Head Doctor Kuralbaev Bekmakhan
Phone: 63-67-89
24 hrs-a-day Ambulance: 62-12-80; 62-12-88
Reception: 63-27-97
2. INTERTEACH
Office #1
Phones: 62-04-06; 62-95-70

Office #2
Phones: 63-97-95; 69-58-31

Interteach is a company offering a network of local doctors, home visits, 24 hour-a-day dispatcher and ambulance service. It arranges medical care at local medical

facilities for foreign citizens through the Hospital of Cabinet of Ministers (VIP Hospital) and specialized medical centers. Interteach provides medical insurance for foreigners visiting Kazakhstan; medical evacuation services are available through Delta Consulting Group Assist-24.

3. Children's Municipal Clinic #1
40 Chapaeva St., Almaty
Head Physician: Dr. Kulyash Nadirova
Tel.: 44-46-10
Reception: 44-45-43
4. Pediatric Medical Institute
146 Al Farabi St., Almaty
Pediatric Advisor - Dr. Kulyan Omarova, Chief of Hematology
Office: 48-86-35 (Note: Dr. Omarova speaks some English)
Reception: 48-88-06

Note: You are advised to have a good Russian speaker with you at each of the above-listed facilities. You will be expected to pay in cash (local currency) at time of service for treatment at clinics or hospitals in Almaty. Keep all of your bills in order to place your claim later with your insurance company.

Travel Insurance for non-Direct-Hire Mission Employees

We strongly recommend travel insurance for trips to Kazakhstan, especially because an air evacuation may be required. Air ambulance medical evacuation from Kazakhstan can cost up to \$100,000. If you purchase travel insurance, try to find a firm that has a reimbursement policy; medical care in Kazakhstan is payable only through cash. Two agencies that offer short-term policies including medical evacuation coverage are:

1. Access America
600 3rd Ave., Box 807
New York, NY 10163
Phone: (1-800) 851-2800
This is a subsidiary of Blue Cross Blue Shield of the National Capital area.
2. International S.O.S. Assistance
P.O. Box 22568
Philadelphia, PA 19116
Phones in
USA: (215) 244-1500 or (800) 523-8930
Singapore: (65) 338-0251
Geneva: (41-22) 785-6464

All travellers to Kazakhstan should have travel insurance which guarantees funds for medical air evacuation. Following is a list of companies providing air ambulance services.

1. International SOS Assistance, Inc.
Geneva
Phone: (41-22) 785-6464 (24 hours a day)
Fax: (41-22) 785-6424

Philadelphia
P.O. Box 11568
Philadelphia, PA 19116
Phone: (215) 244-1500 (24 hours a day)
Fax: (215) 244-9617
2. Euro-Flite Air-Ambulance
Helsinki, Finland
Office #1
Helsinki International Airport
P.O. Box 187
Phone: (358-0) 870-2466
Fax: (358-0) 870-2507

Office #2
P.O. Box 800
Helsinki 00101
Phone: (358-0)-870-2544
Fax: (358-0)-870-2507

Houston, Texas
Phone: (713) 961-5200
Fax: (713) 961-4088
3. Jet Flight Finnish Air
Phone: (358-0) 684-7978 (24 hours a day)
Fax: (358-0) 870-3202
4. Northwest Aeromedical
A DIVISION OF NORTHWEST JET
Box 34, Hanger No 31 Chino, CA 91710
Office: (909) 597-6569
Fax during their night hours: (800) 228-2468
5. MedEx (TravMed)
International Travelers Assistance Association
P.O. Box 5375, Baltimore, MD 21094-5375
Tel: (800) 732-5309

SECURITY ISSUES

Safety in Almaty

Like most NIS cities, Almaty had less crime during the Communist period than it does now; and as the economic climate worsens and the influx of foreigners increases, crime has gone up dramatically. Compared to cities like Moscow, there is less of a threat from organized crime in Almaty; but the number of small-time crimes such as muggings, robberies, car break-ins and assaults have recently increased. This does not mean that the Embassy expects all visitors to severely curtail their appointments and sightseeing, but a few things should be kept in mind while in Almaty.

(1) Although Western clothes and other items are appearing more often on the streets of Almaty, Western visitors are still easy to spot. Clothes such as expensive suits, dresses, and an abundance of jewelry could pinpoint you. "Casual" attire in particular is a problem, especially for women: in NIS countries women dress up even for mundane activities such as shopping. You may therefore want to be careful about such items as shorts, polo shirts, T-shirts, sandals, etc. Items such as backpacks and small electronic equipment can make you a target. Keep this in mind as you prepare to go out.

(2) Behavior on the street is also important. Even if you are not fluent in Russian or Kazakh, it is best to refrain from speaking English in public whenever possible, particularly after dark. Try not to attract attention by being loud or flamboyant. If someone tries to stop you to ask a question or make a comment, often the best policy is to ignore him or her. An attempt to engage someone in conversation is often used as a cover for distracting a victim before a mugging/assault. Repetitive behavior such as using a set travel route to get home, going to particular places, etc., could make you a target.

(3) Keep your eyes open when walking or out in public, and try to stay in well-traveled or frequented areas. Almaty has a number of interesting back streets and beautiful parks, but if there are few people about, be careful.

(4) Try not to take a large amount of either tenge or hard currency when you go out. If a situation occurs where you have to give your money away, you may end up destitute if you carry all your money with you.

(5) Because of the influx of foreign currency and the depreciation of the tenge, kiosks and other currency exchange establishments have sprung up all over the city. The Embassy is concerned that using these kiosks could make you a target for possible muggings before or after you change money. In general, do not use these kiosks; there are banks in Almaty where this can be done safely, and the Embassy Cashier can change money as well.

(6) Avoid traveling alone after dark, and use a car or taxi to get around. This is especially difficult in winter, when the ratio of daylight decreases relative to dark, but this rule still needs to be followed.

(7) Be particularly careful when approaching your hotel/apartment/home. Although we can vary our routes continually to avoid being followed and/or surveyed by possible thieves/assailants, it is easy to wait for someone outside his or her residence. Keep your eyes open, and check corners, doors, lifts or other places where people might hide to surprise you. If taking someone home, make sure they get inside their home and signal you (turning on or flashing lights, etc.) before you leave.

(8) **Emergencies:** If you are attacked, call the police at 02 and then the Marine Security Guard at 50-76-27. If you or a person you are with is injured, call 03 for an ambulance.

Car Security

The number of foreign cars has increased in Almaty, causing a subsequent increase in the number of break-ins. Security devices such as the Club or wheel-locking mechanisms can help keep your car in one place, but it may not stop someone from breaking in and taking a valuable stereo or other gadget. If you can park your car in a secured area, do so. Otherwise, park only in open, well-lit areas, and do not leave your car unattended for a long period of time (i.e., if staying somewhere overnight, find a secure place to park or someone to watch your car).

A particularly unpleasant possibility is the use of a car for transport or storage of explosive devices which will detonate later. Be observant when you go back to your car, and look for evidence of tampering.

Hotel/Home Security

All of the following apply both to visitors as well as temporary/permanent staff:

(1) Even if you have not brought much with you, potential thieves still assume that Westerners have valuables with them such as electronics, cash, etc. For this reason, keep your doors locked at all times, and your eyes and ears open when going into or coming out of your residence.

(2) If you have a peephole, use it. If not, do not open the door without ascertaining that you know who is on the other side. You might want to ask in Russian who it is before you switch to English.

(3) If someone obviously unfriendly is on the other side, call the police (02). Don't just try to handle the situation alone.

(4) If you reach your residence and there has been a break-in, immediately notify the hotel manager (if you are in a hotel), the police, and the Marine Security Guard at 50-76-27.

Embassy Security

Embassies often attract unwanted attention as well as people with less than good intentions. Knowing this, be careful when approaching the Embassy. If you are harassed, tell the Embassy guard or Marine about the incident. Never accept a package or letter from someone who wants you to take it into the Embassy. Explosive devices can be hidden in very small packages. Visitors to the Embassy should be prepared to surrender their passport to the guard in exchange for a visitor's badge. You may want to schedule an appointment with the Embassy in advance and have them alert the guard, so as to avoid any misunderstandings and/or delays in your schedule.

SHOPPING IN ALMATY

Grocery Shopping

Food is generally available year-round in Almaty. Almaty has both general grocery stores, where almost all types of food products can be bought in one location and specialty shops such as bakery/bread stores (bulochnayas), butcher shops, etc. There are also a growing number of western-style stores which offer imported food items from Europe and the US. Culinarias are the equivalent of the western deli, with take-out foods available to custom-design a full-course meal (appetizers, salads, soup, entree, dessert). Kiosks now have an excellent supply of imported items such as softdrinks, beer and wine - often at much lower prices than the western-style stores. All of these items may be bought in bulk; however, at the wholesale market at a significantly reduced rate. While this market is something of a hassle, it's convenient to buy in case lots and not have to think about household supplies on a day-to-day basis. Fresh items bought in Almaty shops are usually safe; see the Health section about handling and care of meats, dairy products, fruits and vegetables.

Western-style stores: Although there are a fairly good number of western-style stores currently in Almaty, these stores tend to charge high prices for their products (often 30-50% above normal prices for this type of merchandise), and their selection of goods tends to vary with the store, time between shipments, and often the whims of the store's management.

Galaxy - 45 Kazybek Bi (at Kunaeva) 10-14:00, 15-19:00 M-F, until 15:00 Sa. A rather large drinks selection (liquor, fruit juice, UHT milk, water, sprite, coke, etc.) in comparison with other stores.

Interfood - 15 Gogol (at Eighth of March) 10-20:00 M-Sa, until 18:00 Su. German deli items, butter, yogurt, ice cream, frozen meat and vegetables, and often has fresh fruit and vegetables not normally found in Almaty (western-style lemons, kiwi, papaya, mushrooms, cauliflower, broccoli, etc.).

Tilek - 49 Nauryzbay Batyr (at Aiteke Bi) 10-14:00, 15-18:00 M-Sa. Until recently, the shop has stocked fresh deli ham and turkey and a selection of cheeses. Shipments of popular American goods, unfortunately, are outdated and exorbitantly priced (\$8.00 for a bottle of Ragu).

Acsept - 31 Kurmangazy at Kunaeva, 11-15:00, 16-20:00 M-Sa, located directly across from the Dostyk Hotel. A grocery store of sundry items imported from Turkey. These include, but are not limited to, gifts, souvenirs, china, crystal, lingerie, clothes, shampoo, make-up, jewelry, stereo equipment, heaters, small appliances, toys and "Giant" brand foodstuffs.

Eurofood - located on the corner of Abai and Ablai Khan across from the Russian Drama Theater, the store stocks a wide variety of western products and alcohol, in addition to locally made bread, to-go salads and entree items. Open M-F 10:00-19:00, Sa 10:00-17:00.

In the weeks leading up to Christmas, more "luxury" style items are often available in the above stores i.e., long-life whipping cream and smoked salmon, pates, German Christmas decorations such as tree ornaments, stockings, candles, advent calendars, chocolate Santa's. Popular items sell quickly so shopping early is essential.

Culinarias: Most culinarias stock pretty much the same items such as canned and dry goods, sodas, coffee, liquor, cheese, candy, cookies, fresh meats, prepared snacks, salads, bakery goods.

Yubileini "State Store" - located on the south side of Gogol between Panfilov and Ablai Khan. The store is organized in a kiosk fashion, with some separation of goods by theme: milk products, dried pastas, meat. Pasteurized milk in cartons is delivered fresh daily.

Gogol Culinaria - located on the northern side of Gogol between Furmanov and Panfilov. This culinaria bakes fresh rolls after the lunch break, has Korean food items such as sea weed and sesame oil, pizza dough is also available.

Shevchenko Culinaria - located on Shevchenko just east of Kosmonavtov. This is the most exclusive of the culinarias in town, hours 10:00-15:00, 16:00-19:00 M-Sa, Su 11:00-18:00. Refrigerated cutlets and pastas, butchered meat, turkeys, ducks and suckling pig, prepared salads and entrees, whole grain breads, imported milk products: cheeses, cheese and butter spreads, butter, yogurt, imported luncheon meats, prepared cakes and desserts, fresh vegetables and fruits. This is the best choice if quality, variety and freshness are a priority as it offers one stop shopping where it does not require effort or creativity to buy a complete meal for a crowd.

Samal Supermarket - located on the east side of Ablai Khan just south of Kabanbai Batyr. Many people buy their meat custom butchered from this culinaria: sirloin may be fresh ground on the spot, filets will also be cut to order.

Panfilov Culinaria - located on Panfilova just south of Kazybek Bi. This is one of the older "take-out" food establishments in Almaty. Pizza dough, sweet roll dough and pasta/dumpling dough are usually available in the evenings at this market. This is a particularly popular spot for the locals who enjoy the pre-cooked meats, the prepared sweet or vegetable filled rolls, frozen foods and fish. It offers a more historic atmosphere and attitude as the shop assistants are harried and indifferent to customers--it's a good glimpse of life in the former Soviet era.

Department and Specialty Stores

There are few large department stores in Almaty. The most prominent is Zangar (on the corner of Abylay Khan and Zhibek Zholy; the latter is the "walking street", leading to the Central Market if you go in the other direction), which has many of the sections you would expect to find in a Western department store, such as men's and ladies' clothing, housewares, cosmetics, etc. but the selection is lacking: coats and winter wear, for example, appear and disappear well before people would actually start using them. Frequent browsing through Zangar is the best way to find out when items are available. Prices (in tenge) are average with similar Western products but the quality is usually sub-standard. There is one women's clothing boutique inside

Zangar on the third level that carries Ann Taylor and DKNY overlots from Korea. There are also a few specialty clothing stores, such as Grappo (Gogol street, west of the Embassy), that have some items with a more European flair.

Shops for specialty items, such as furs, rugs, etc., exist in Almaty; but these vary in selection and price. If there is an item you want to buy, and you have a fair amount of time to spend in Almaty, you may want to browse through a few shops for the best items and prices. Fur items are expensive in Almaty, whereas the equivalent item in Bishkek or Tashkent is a fraction of the price that the same item is in Almaty. This is true of art items such as rugs, paintings, etc., which often have inflated prices specifically tailored for the western consumer market in Almaty.

Mekha (Fur) Atelier located at 45 Baiseitovoy at Abai 9:00-14:00; 15:00-20:00 daily. And Mekha (Fur) Magazine located at 151 Panfilov at Kurmangazy 10:00-14:00; 15:00-18:00 M-Sa. Telephone 62019095.

The Central Market

This is located at the corner of Zhibek Zholy and Pushkin Streets (the "Green Bazaar" on your map), and was originally the "private plot" market, or the place where kolkhozniki sold their privately-grown goods during the Communist period. Today it exists as a large farmer's market, and a variety of goods can be purchased here, such as fruits, vegetables, nuts, spices, bread, some dairy products, and cuts of beef, lamb and horsemeat.(very red in appearance). While meat is stored in refrigeration lockers on the lower level, it is best to develop a relationship with a reputable dealer; they will tell you which meat is fresh or not. The market has several levels; at the entrance there are steps leading down to a level where fruits and vegetables are sold by local farmers, and the enclosed detached market building holds vendors (who often work through a cooperative farm or privatized distribution units) who sell meat, fish and poultry, fruits, vegetables, dairy products, honey, nuts, spices, and flowers. Delicious strawberries and raspberries abound in season and freeze well! The square surrounding the market building has kiosks, where foreign and locally processed products are sold.

Foreign visitors to the market should be forewarned that vendors often inflate food prices when they realize the purchaser may not be Kazakhstani, and/or require the purchaser to buy more than they really need. Shop around. Also, keep in mind that personal scales may not necessarily be accurate for weighing goods; recent news reports have shown that some of these are fixed. Finally, be careful moving around the market; security incidents have occurred involving teams of pick-pockets. The locals hold their money in one hand and hold bags of goods in the other; it is not likely physical assault will occur when cash is carried this way. Alternatively, even if alert, purses and pockets are routinely slashed.

The Currency Crunch

Prices for many items, particularly art objects such as rugs or paintings, are often inflated; this is not necessarily a consequence of an influx of foreign buyers, but more an influx of foreign currency, which in some situations is preferable to tenge. Many prices are now only listed in dollars, and these may be high merely because of

estimates by the sellers. Try to get prices quoted in tenge. This is not always possible, especially for art items, but it could save you from paying in hard currency. Haggling is perfectly respectable in Kazakhstan; if you don't want to pay the price, try to bring it down beginning with a minimum discount of 30%-50%. The dealer will counter with a 10% discount, counter offer by adding 10% to your original bid. In the end "split the difference", pay the dealer's price or walk. Smile and joke as you bargain; better humor in the process will improve your chances of cutting a deal.

Security While Shopping

A good policy for shopping is not to carry a large amount of cash (either tenge or hard currency) with you unless you definitely intend to buy something with it. Pulling out a large stack of bills and counting them out in public makes you a target for unfriendly people after you leave the cashier. You may want to keep your spending money in smaller amounts on your person. A travel wallet is a good investment in Almaty; pick-pocketing is not unusual, particularly in open areas.

USEFUL PHASES IN RUSSIAN

Essentials

Yes/No	da/net	да/нет
Hello	zdravstvuite	здравствуйте
Good-bye	do svidaniya	до свидания
Thank you	spasibo	спасибо
Help me please	pomogite mne pozhaluista	помогите мне, пожалуйста
Do you speak English?	vy govorite po Angliski	Вы говорите по Английски?
I don't understand	Ya ne ponimayu	я не понимаю

In a Taxi

Take me to U.S. Embassy	dovezite menya do Posol'stva S.Sh.A.
	довезите меня до Посольства США
Take me to Ankara Hotel	dovezite menya do gostinitsy Ankara
	довезите меня до гостиницы Анкара

Money/Shopping

Money	dengi	деньги
Shop	magazin	магазин
Market	rynok	рынок
Currency Exchange	obmen valyut	обмен валют
How much is?	skolko stoit?	сколько стоит?
Do you have?	u vas yest?	у Вас есть?

Food & Drink

Restaurant	restoran	ресторан
Café	kafe	кафе
Bill/Receipt	schyot	счет
Order	zakaz	заказ
Juice	sok	сок
Wine (red/white)	vino (krasnoye/beloye)	вино (красное/белое)
Beer	pivo	пиво
Water	voda	вода
Snacks	zakuski	закуски

U.S.DOLLARS/TENGE CONVERSION CHART

\$	1.00	T	85.40
\$	10.00	T	854.00
\$	20.00	T	1,708.00
\$	30.00	T	2,562.00
\$	40.00	T	3,416.00
\$	50.00	T	4,270.00
\$	60.00	T	5,124.00
\$	70.00	T	5,978.00
\$	80.00	T	6,832.00
\$	90.00	T	7,686.00
\$	100.00	T	8,540.00
\$	150.00	T	12,810.00
\$	200.00	T	17,080.00
\$	250.00	T	21,350.00
\$	300.00	T	25,620.00
\$	350.00	T	29,890.00
\$	400.00	T	34,160.00
\$	450.00	T	38,430.00
\$	500.00	T	42,700.00
\$	1,000.00	T	85,400.00

T	10.00	\$	\$0.12
T	50.00	\$	\$0.59
T	100.00	\$	\$1.17
T	200.00	\$	\$2.34
T	300.00	\$	\$3.51
T	400.00	\$	\$4.68
T	500.00	\$	\$5.85
T	600.00	\$	\$7.03
T	700.00	\$	\$8.20
T	800.00	\$	\$9.37
T	900.00	\$	\$10.54
T	1,000.00	\$	\$11.71
T	1,500.00	\$	\$17.56
T	2,000.00	\$	\$23.42
T	2,500.00	\$	\$29.27
T	3,000.00	\$	\$35.13
T	3,500.00	\$	\$40.98
T	5,000.00	\$	\$58.55
T	10,000.00	\$	\$117.10
T	50,000.00	\$	\$585.48

Cheryl C. Anderson

02/19/99 06:22:24 PM

Record Type: Record

To: Joseph E. Aldy/CEA/EOP

cc:

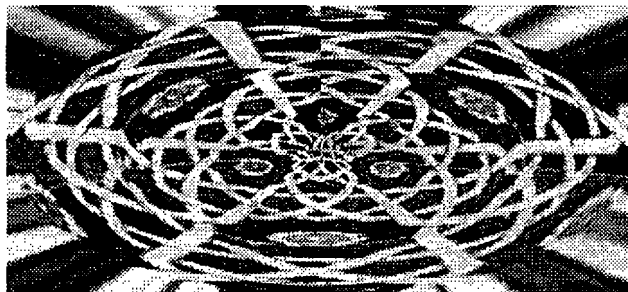
Subject: almaty

Here is a little more from my friend Deepika on Almaty. I hope you have a good trip.

Also, please tell your friend Joe that I'm sorry if I freaked him out about Almaty. It's a decent city with a friendly and well-dressed dictator. Lonely Planet Guides are on-line and have a decent section on Almaty. He shouldn't miss Panfilov Park (with the Church of the Resurrection and neat Soviet WWII statues), Gorky Park, the mountains (Chimbaluk/Medeo), and various museums. Shopping is good for velvet pictures and crappy ceramics along the Arbat, but the big department store is right there and kind of a trip to look around in. Good bars --- the Guinness Pub and Mad Murphy's. Good restaurants --- Tomiris, near the Hotel Kazakhstan, has great food and the Cafe Svetloe (Cafe Light) is on the corner of Bogenbai Batyr and Dostik (old road name is Lenin). If he has any questions, he can feel free to contact me ---I'm a crazy person getting ready for Nepal, but he can still try.

Deepika@ifes.org

DESTINATION KAZAKSTHAN



Reaching from the Caspian Sea to China and from Siberia to the Tian Shan Mountains, Kazakhstan is more than twice as big as the four other former Soviet Central Asian republics put together and is roughly half the size of mainland USA. It's the least densely populated area in Central Asia and, potentially, the most mineral rich.

The countryside is unremittingly bleak, from its endless semi-arid steppe to its decaying industrial cities. If it sometimes looks like the landscape has suffered from hundreds of nuclear explosions, well, parts of it have - ever since Russian rocket scientists started using Kazakhstan as a sandpit in the late 1940s.

The chief exceptions to this relentless desolation are the cosmopolitan city of Almaty and the spectacular spurs of the Tian Shan and Altai mountains on the country's southern and eastern borders. Most travellers use Kazakhstan as a staging post to visit the more famous Central Asian destinations, but those who enjoy remoteness, wide open spaces and long hypnotic train rides will definitely be in their element.



[Map of Kazakhstan \(16K\)](#)

[Facts at a Glance](#)

[Facts for the Traveller](#)

[Money & Costs](#)

[Attractions](#)

[Off the Beaten Track](#)

[Activities](#)

[Lonely Planet Guide](#)

[Travellers' Reports on Kazakhstan](#)

[On-line Info](#)



Facts at a Glance

Full country name: Kazak Republic

Area: 2.7 million sq km (1.67 million sq mi)

Population: 16.8 million

Capital: Astana

People: 40% Kazaks, 38% Russian, 6% German, 5% Ukranian

Languages: Kazakh, Russian

Religion: Sunni Muslim



Facts for the Traveller

Visas: A standard visa to enter Kazakhstan requires an invitation (called 'visa support') and you will need to have either arranged a homestay or reserved and paid for a hotel in advance. Many western visa and specialist travel agencies can obtain invitations through local contacts, and most will also do the aggravating embassy legwork. Visas can be obtained from overseas embassies or consulates, from Russian embassies in countries without Kazakhstan representation, or (if you fly in from outside the former USSR) on arrival at Almaty airport. In general, you must have 'visa support' for any of these, although you can get an extendable three-day visa on arrival at the airport without support, but it's ridiculously expensive at US\$100. A Russian visa is acceptable if you plan to stay less than 72 hours. If you plan to cross overland from China, the only reliable place in China to get a Kazak visa is Beijing. There's also a small Kazak embassy in Islamabad.

Time: There are three time zones: GMT/UTC plus four, five and six hours

Electricity: 220V, 50 Hz, using European two-pin plugs (round pins, no earth connection). Bring a torch!

Health risks: Hepatitis A & E, cholera, diphtheria & undulant fever. Play it safe and don't drink the water even if locals say it's OK to drink.

Weights & Measures: Metric ([see conversion table](#))



Money & Costs

Currency: The tengge (T)

Relative costs:

- Budget meal: US\$4-8
- Restaurant meal: US\$8-15
- Budget room: US\$10-20
- Mid-range hotel: US\$25-60



Attractions

Almaty

This booming city was founded in 1854 as a Russian frontier fort when the Kazaks were still nomads and was capital of Kazakhstan until late 1997. Almaty has become a honeypot to Kazakhstanis and a mixed bunch of foreign traders, diplomats and financiers jockeying for position in the race to carve up

Kazakhstan's mineral resources. Sudden exposure to the outside world turned this provincial outpost into Central Asia's most cosmopolitan city with shops, restaurants, hotels and casinos that would make the place unrecognisable to anyone who had been away since 1990. But now that the government has moved the capital to the northern city of Astana (previously known as Aqmola), Almaty's future is uncertain. Almaty is closer to the heart of the Russian railway network and farther from national borders and conflicts in Tajikistan and Afghanistan.

Almaty is clean (apart from its air) and easy on the eye, with long straight avenues and low-rise uniform architecture bearing the unmistakable imprint of Russia. The Zailiysky Alatau mountains rise like a wall along Almaty's southern fringe and form a superb backdrop when weather and smog permit. There are lots of parks, space and greenery, and many of the Soviet-era buildings are striking if you look at them individually. That said, there's not a great deal to do in Almaty, which is why, for many travellers, it is little more than a way-station.

Highlights include **Panfilov Park**, a pleasant rectangle of greenery surrounding the bright **Zenkov Cathedral**. The cathedral is one of the few tsarist-era buildings to survive the 1911 earthquake, despite the fact that it is built entirely of wood and constructed without nails. Facing the west end of the park is the elaborate **Arasan Baths** where you can take your salami and vodka and contemplate the differences between Turkish, Russian and Finnish bathing habits. The **Central State Museum** provides a worthwhile, if patchy, introduction to Kazakhstan's history and includes a miniature replica of the country's chief archaeological treasure, the Golden Man - a warrior's costume made from 4000 gold pieces, many finely decorated with animal motifs.

Medeu & Shymbulaq

The weekend playgrounds of Medeu and Shymbulaq are in the foothills of the Zailiysky Alatau, 15km (9.3mi) from Almaty. Situated at an altitude of 1700m (5576ft), Medeu consists of a smattering of buildings built around one of the world's largest speed skating rink. Between October and May, half of Almaty seems to spend its weekend leisure time whizzing round the rink in various states of dizziness and undress. Shymbulaq, a further 500m (1640ft) closer to God, is one of Central Asia's top skiing spots. The ski season lasts from November to April, though it's usually best in January and February. Get here early on weekends because ski hire shops tend to run out of gear. Further into the foothills is the picturesque turquoise **Bolshoe Almatinskoe Lake**. All three spots are good places to begin treks into the Zailiysky Alatau and the Küngey Alatau mountains - see below.

Zailiysky Alatau and the Küngey Alatau

The greatest attraction for travellers to Kazakhstan are the 4000m (13,120ft) plus peaks of the Zailiysky Alatau and the Küngey Alatau, two spurs of the Tian Shan which run east-west between Almaty and Lake Issyk-Kul in

Kyrgyzstan. This beautiful region of glaciers, wild rivers and steep valleys used by nomadic herders as summer pasture is great trekking territory for travellers. There are dozens of trails of varying length and toughness, including hikes right over the range to Lake Issyk-Kul; guides can be arranged with travel agents in Almaty. Be prepared for variable weather, a summer snowline hovering around 4000m (13,120ft) and bandits. The trekking season lasts from June to September.

Köl-Say Lakes

These three pretty green lakes lie amid the steep forested foothills of the Küngey Alatau, 110km (68mi) east of Almaty. The lakes are strung along the Köl-Say river at an altitude of around 2000m (6560ft) and offer great camping and trout fishing opportunities. June and August are the best months to visit, but keep a close eye on the weather. Travellers can arrange helicopter excursions to the lakes from Almaty or reach them overland from Saty; the lower lake is accessible by vehicle but you're better off hiring horses in Saty. It's possible to trek from the pastures of the middle lake over the 3200m (10,500ft) Sary-Bulak pass to the Kyrgyzstan village of Balbay on the shore of Lake Issyk-Kul. By horse this can be done in a day; on foot it takes two days. From the pass there are fantastic views north towards the Kazak steppe and south into the Issyk-Kul basin.

Astana

Kazakhstan's capital (known as Aqmola until May 1998) was a tiny mining town until the 1950s when Krushchev announced his Virgin Lands scheme to turn 250,000 sq km (155,000 sq mi) of Kazakhstan steppe into wheat fields. Astana became the project's capital, was renamed Tselinograd (Virgin Lands City), and became the centre of an important grain-growing region. The capital was shifted from Almaty to Astana in December 1997 amid almost universal reluctance. President Nazarbaev cited Astana's more central and less earthquake-prone location and better rail links with Russia among its advantages. Politicians are grumbling about its freezing winters and extremely sticky summers.

It's a friendly and fairly low-rise town, with some attractive tree-lined streets, but prone to strong steppe winds. The population is around 70% Russian, Ukrainian and German, and 30% Kazak. There are no plans to move embassies and consulates from Almaty, so the only reason you're likely to end up in Astana is if your train passes through.



Off the Beaten Track

Aqsu-Zhabaghy Nature Reserve

This 750 sq km (465 sq mi) reserve in the foothills of the Talassky Alatau range is one of the highlights of southern Kazakhstan and the easiest visited of

the country's nature reserves. The scenery ranges from mountain meadows and juniper forests to glaciers and a 4500m (14,760ft) peak. This is an important habitat for the rare snow leopard, though you stand a much better chance of seeing bears, ibex and birds of prey. Guided hikes or horseback trips can be arranged in the village of Zhabaghly, 100km (62mi) west of Zhambyl.

Aqtau

Stuck between the desert and the Caspian Sea, with all its water derived from desalination plants, the town of Aqtau in western Kazakhstan is one of the world's great 'why-on-earth-does-anyone-live-here?' places. It didn't exist at all until 1963 when Soviet architects began to lay out a model town of wide, straight streets and apartment blocks after uranium deposits were found nearby. Thanks to its sandy beaches it also developed as an unlikely holiday resort for the Soviet elite. The tourist and uranium industries are in decline so Aqtau now has the feel of a place whose bubble has burst. The improbability of Aqtau is enhanced by the fact that it's hundreds of km from any other town and not linked to anywhere by decent roads (supplies are mainly freighted in by air). For the perverse and JG Ballard lovers only.

The Polygon

Until the 19th century, the steppe of northern Kazakhstan was largely untouched except by Kazak nomads and their herds. Since then much of the region has been ploughed into wheat fields, thanks to Nikita Krushchev's Virgin Lands scheme, and one particularly unfortunate 15,000 sq km (9300 sq mi) area known as 'The Polygon' had 470 nuclear bombs exploded on it between 1949 and 1989. Residents of Semey, 150km (93mi) from the test zone, say they knew when tests were going on because the ground would shake - usually on a Sunday morning (though this might be attributed to a long Saturday night on the vodka).

The nerve centre of the test zone was the purpose-built town of Kurchatov, named after the leader of the team who invented the Soviet atom bomb. Today the town is known locally as 'Konechnaya' - Russian for 'The End'. The town is usually restricted to official delegations but you can visit the Atomic Lake, a huge circular water-filled hole in the ground blasted out to create a reservoir in 1965. The bleak beauty of the steppe is a fitting testimony to this terrible environmental disaster.



Activities

Trekking and mountaineering are particularly good in the Zailiysky Alatau and the Küngey, notably around Medeu, Shymbulak and Kokshokty. There are more opportunities in eastern Kazakhstan in the Zhungarsky Alatau range east of Taldy-Qorgha and in the Altay mountains in the country's north-east. The safest way to go trekking is through a reliable agency and with a guide, though you're advised to bring your own equipment since gear is hard to come

by. The best trekking season is between June and September, though be prepared for bad weather at any time. An essential resource for all serious trekkers and climbers is Frith Maier's *Trekking in Russia & Central Asia*.

Shymbulak is Central Asia's best known downhill **ski** area and is only a day trip from Almaty. January and February are the peak months of the ski season. A few local travel agents offer **ski-mountaineering** trips in the central Tian Shan in July and August, and in the Alatau range between Almaty and Lake Issyk-Kul from February through April. Nearly every sports related agency offers **heli-skiing** to remote high peaks in old Aeroflot helicopters.

Rafting and **canoeing** trips on remote rivers can be arranged by several travel agencies. There is easy rafting and canoeing on the Ili River between Lake Qapshagay and Lake Balqash, north of Almaty, from mid-April to mid-October.



Lonely Planet Guide

- [Central Asia - a travel survival kit](#)



Travellers' Reports

- [Click here for the latest \(but unverified\) travellers' reports on Kazakhstan](#)



On-line Info

- Take the subWWWay to [Central Asia](#)

Be sure to also check out Lonely Planet's on-line information on:

- [Central Asia](#)
- [Kyrgyzstan](#)
- [Tajikistan](#)
- [Turkmenistan](#)
- [Uzbekistan](#)

- Want to know what Central Asia looks like?
Check out the [Central Asian slide show](#) for some groovy pics.





Text & maps © Lonely Planet 1999



Kazakhstan



**Acid Rain Program
U.S. Environmental Protection Agency**

Fax Cover Sheet

To: DAN BALZER
JOE ALDIE

Phone:

Fax:

Date: 2/16

From: STEPHANIE BENKOVIC

Phone: 564 9142

Fax: 565-2140

Pages (incl. cover sheet): 14

DAN/JOE -

CLI - ATTACHED IS A DRAFT PRESENTATION
ON EMISSION ESTIMATES (WHERE THERE
HAVE BEEN IMPROVEMENTS) AND EMISSION
PROJECTIONS (BASIC METHODS).

FEEL FREE TO SEND ME COMMENTS.

I'LL SEE YOU SATURDAY!

STEPHANIE

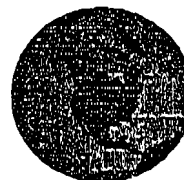
The EPA is taking steps to ensure that no disruptions in service or environmental protection occur when our data systems encounter the year 2000. Contact us with questions about how you too can prepare your Acid Rain Program technologies for Year 2000 Compliance.

For more information about the Acid Rain Program,
visit our web site at www.epa.gov/acidrain, or
call the Hotline at (202) 564-9620.

DRAFT

U.S. Greenhouse Gas Emissions Inventory and Projections

Stephanie Benkovic
United States Environmental
Protection Agency



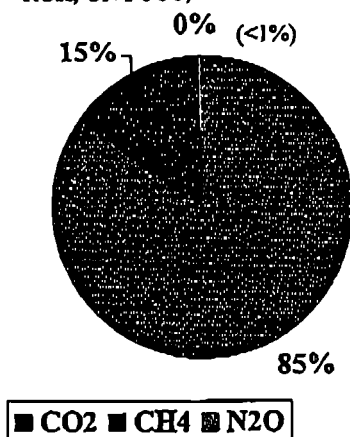
Part I: Emission Estimates

Emission Factor * Activity Level

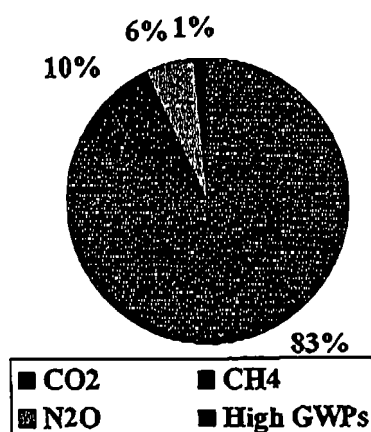


Comparison of Kazakhstan and US 1990 Emissions

National Communication of the
ROK, UN FCCC, 1998



Inventory of US Greenhouse Gas
Emissions and Sinks: 1990-96



IPCC Good Practice Guidelines

- Article 5 of Kyoto Protocol calls for countries to use 1996 IPCC Guidelines
 - Using IPCC Guidelines is key to a successful national monitoring program for GHG emissions
 - Work is ongoing to improve inventory methods (regional workshops, IPCC report)
- Accuracy of GHG emission inventories increases certainty and could increase value of tradable units

Range of Options for Emission Estimates under IPCC

- Lowest Tier -- default emission factors
- Higher Tiers -- (significantly more accurate)
 - direct measurements, when possible, and
 - disaggregated, specific emissions factors

Key Sources of U.S. CO₂ Emissions/Sequestration

- Fossil fuel combustion (99%) for:
 - energy, heating, industry, transport, industrial processes
- Cement and Lime Manufacture
- Other Industrial Processes
- Land Use Change and Forestry



CO₂ Emissions Estimates

- CO₂ emissions from combustion =
 - (fuel consumed * carbon content) - unburned fuel
- Determining fuel consumed
 - aggregate level accounting of national fuel use OR
 - sector or source level accounting of fuel consumed
- Determining carbon content
 - IPCC default fuel specific emission factor
 - local fuel-specific emission factors
 - fuel sampling and analysis

Quality of Non-CO₂ GHG Estimates

- High for many sources
- Trend is toward steady improvement
- The keys:
 - measurement data whenever available
 - high level of disaggregation
 - interaction with researchers



Non-CO₂ Emissions Can Be Estimated Accurately

- CH₄ from Underground Coal Mining: use mine-specific ventilation and recovery measurements (accuracy < ±10%)
- CH₄ from Enteric Fermentation: use country or state-specific emissions factors specific to cattle type and age (accuracy < ±20%)
- N₂O from Adipic Acid Production: use plant specific measurements or monitoring (accuracy < ±5%)
- CH₄ and N₂O from agricultural soils, natural gas systems, and rice cultivation need work to improve methods

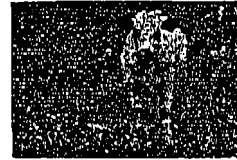
Key Sources of U.S. Methane (CH₄) Emissions

- Landfills -33%
- Domesticated Livestock (Enteric Fermentation) - 19%
- Natural Gas and Oil Systems - 19%
- Coal Mining - 17%
- Livestock Manure - 9%
- Other - 1%



Livestock: Disaggregation (CH_4)

- Over 160 million cattle, hogs, sheep etc.
 - Total Emissions = Emissions/Head X Population
- Cattle produce 95% of U.S. livestock CH_4
- Emissions vary with diet, productivity, age, size, type of cattle, region
- Need emissions factors by: Region, Age, and Type (Dairy, Beef, Slaughter, Bulls)



Coal Mining: Direct Measurement (CH_4)

- Underground Mining:
 - 50% of production, 70% of U.S. coal bed CH_4 emissions
 - 100 largest mines > 90% of U.S. coal bed CH_4 emissions
- Ventilation data for all 586 mines
- 20 mines use degasification systems
- Approximately 12 mines use recovered gas
 - gas sales data
 - information from mine operators



Key Sources of U.S. Nitrous Oxide (N₂O) Emissions

- Agricultural Soil Management - 68%
- Fossil Fuel Combustion - 18%
- Adipic Acid Production - 5%
- Nitric Acid Production - 4%
- Manure Management - 3%
- Other Sources - 2%



N₂O From Agricultural Soils

- IPCC Expert Panel to revise Guidelines (USDA/USEPA):
 - Involved top researchers in field
 - Surveyed latest available literature
 - Created methodologies for additional sources
 - US 1990 estimate rose from 17 to 62 MMTCE
- Future Improvements:
 - Other sources? Irrigation, drainage
 - More study of indirect emissions
 - Measurements/sampling



Sources of Fully Fluorinated Compounds (PFCs, HFCs, SF₆)

- Substitution of Ozone Depleting Substances
- Primary Aluminum Production
- Production of HCFC-22 (HFC-23)
- Industrial Processes in Semiconductor Industry
- Electrical Transmission and Distribution
- Magnesium Production and Processing

Part II: Projection Inventories

Emission Factor * Activity Level * Growth Factor

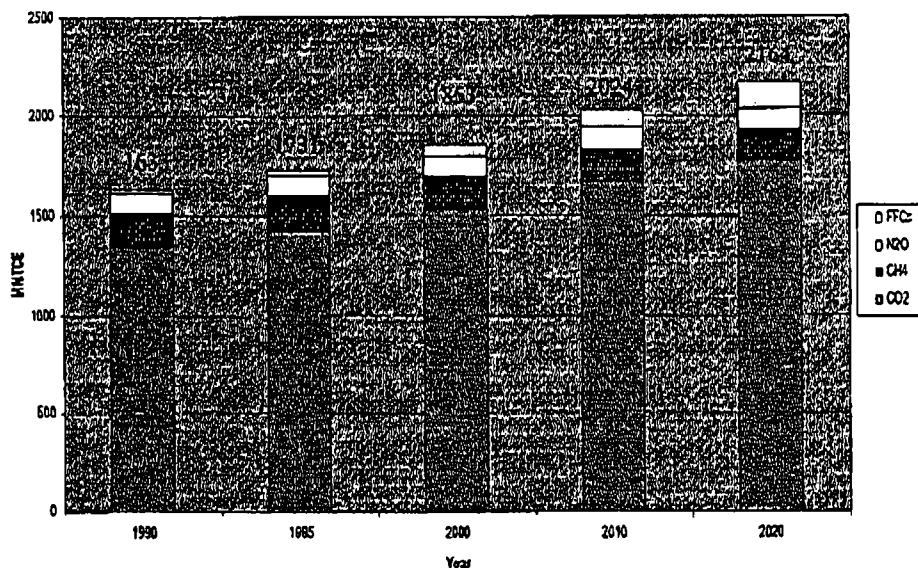


US GHG Emission Projections

- Projections assume that Climate Change Action Plan (CCAP) program funding will be proportional to 1993 funding levels.
- CO₂ projections are gross emissions - no conclusive decision on measurement of changes in carbon stocks/carbon sequestration



US GHG Emissions w/CCAP (BAU) - Draft 1998



Key Assumptions for US Climate Action Report Projections

- Population
- Gross Domestic Product (GDP)
- Energy Intensity
- Minemouth Coal Price
- World Oil Price
- Gasoline Price
- Natural Gas Price



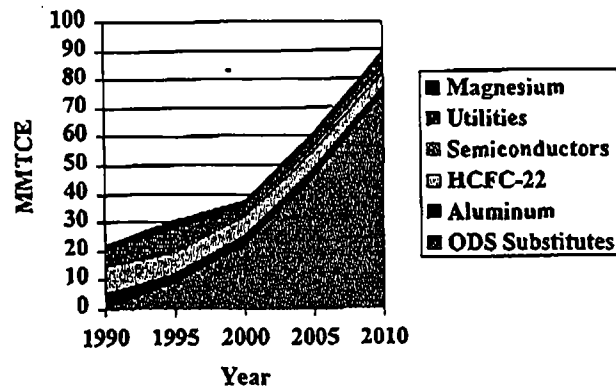
Values Used in Emissions Forecasts

Real GDP (billions of 1995 dollars)	6380	8005	9745	11259
Population (millions)	250	276	299	324
Energy Intensity (Btu per 1995 \$ GDP)	13217	12123	10767	9809
World Oil Price (1995 \$/1000 cft)	23.98	18.20	20.33	22.16
Wellhead Natural Gas (1995\$/1000cft)	1.91	1.85	1.98	2.39
Avg Price Electricity (\$/kwh)	7.20	6.70	6.40	6.10
Avg. Price Gas (1995\$/gall)	1.28	1.37	1.39	1.43

Source: 1997 US Climate Action Report, EIA



Fully Fluorinated Compounds US Emissions Trends (by source)



100 Year Global Warming Potentials (illustrative list)

- Methane 21
- Nitrous Oxide 310
- HFC-23 11,700
- CF_4 6,500
- C_2F_6 9,200
- SF_6 23,900



Factors That Could Increase Emissions Forecasts

- More rapid growth in electricity demand
- Flat rather than slightly rising real energy prices
- More rapid economic growth
- Cuts in governmental funding for GHG emissions reduction activities
- Slower than expected technological advances

Factors That Could Reduce Emissions Forecasts

- Slower economic growth
- Higher energy prices
- Increased efficacy of voluntary programs
- Rapid technological advance
- Increased funding for GHG emissions reductions programs
- Unusually mild weather

Uncertainty in Emissions Estimates

- Activity levels and emissions factors contribute to uncertainty
- Improving data and level of disaggregation can reduce uncertainty
- Generally, emissions factors account for more uncertainty than activity levels

Summary

- Accuracy of all emissions estimates can improve by using data and examining emissions source by source (disaggregated)
- Non-CO2 emission estimates are improving
- Accurate information on economic factors will help minimize uncertainties with projection inventories



As of February 24, 1999, 1900 HRS

**FINAL SCHEDULE FOR THE CLIMATE CHANGE TECHNICAL TEAM VISIT
TO ASTANA, February 25, 1999**

500 Pick up at the Alatau sanatorium (Mr. Miotke,
 Mr. Aldy, Mr. Guymont, and Mr. Golub)

700 Depart for Astana from the airport

835 Arrive in the Astana airport
 (meet by an Embassy/USAID arranged van)

900-940 Tea&coffee (Embassy office in Astana)

1000 Meeting with Serikbek Daukeyev, Minister of
 Environmental Protection and Natural
 Resources

Other ministry participants:

 Bulat Yesekin, Director of the National Ecological
 Center
 Sergey Yelkin, Coordinator for the FCCC Issues

1130 Meeting with Kayrat Nurpeisov, Deputy
 Minister of Energy, Industry, and Trade

Other ministry participants:

 Suyunshlik Tiyesov, Head of the Electric Energy
 Department
 Fakhra Usmanova, Head of the Foreign Economic Policy
 Department

1230-1330 Lunch (cafeteria "Kvartira")

1400 Meeting with Yerzhan Utembayev,
 Chairman of the Agency for Strategic
 Planning and Reforms attached to the
 President

1500 Meeting with Uraz Dzhandosov, Deputy Prime
 Minister - Minister of Finance

Other possible participant:

 Roman Solodchenko, Chairman of the Government's
 Committee on Economic Planning

1630 Meeting with Zeynulla Kakimzhanov,
 Minister of State Revenues

1800	Dinner (restaurant "Edem")
1920	Depart for the airport
2045	Depart for Almaty from the Astana airport
2210	Arrive in the Almaty airport

As of February 24, 1999, 1000 HRS

**NOTIONAL SCHEDULE FOR THE CLIMATE CHANGE TECHNICAL
TEAM VISIT TO ASTANA, February 25, 1999**

5:00 Pick up at the Alatau sanorium to
travel to the airport (Mr. Miotke, Mr.
Aldy, Mr. Guymont, and Mr. Golub)

7:00 Departure for Astana from the Almaty
airport

8:35 Arrival in Astana

9:00-9:45 Breakfast (Location TBD)

10:00 Meeting with Serikbek Daykeyev,
Minister of Natural Resources and
Environmental Protection

Other participants from the Ministry:

Bulat Yesekin, Director of the National
Ecological Center

Sergey Yelkin, Coordinator for the Framework
Climate Change Convention

Status: Confirmed

11:30 Meeting with Kayrat Nurpeisov,
Deputy Minister of Energy, Industry,
and Trade

Other participants from the Ministry:

Suyunshlik Tiyesov, Head of Electric Energy
Department

Fakhra Usmanova, Head of Foreign Economic
Policy Department

Status: Confirmed

12:30-13:30 Lunch (Location TBD)

14:00 Meeting with Yerzhan Utembayev,
Chairman of the Agency for Strategic
Planning and Reforms at the President

Status: Confirmed

15:00 Meeting with Uraz Dzhandosov, Deputy
Prime Minister - Minister of Finance

Status: Confirmed

Other participants: Roman Solodchenko, Chairman of
the Government's Committee on Economic Reform
(not yet confirmed)

16:30 Meeting with Zeynulla Kakimzhanov,
Minister of State Revenues

Status: Confirmed

18:00 Dinner (Location TBD)

20:45 Departure for Almaty

22:10 Arrival in the Almaty airport

MR ALDY, CEA

395-1455

Peter Kampff

(202) 586-5639

Abbreviated Market Story (from a larger slide set)

Peter Karhoff
586-5639

Key Policy and Economic Questions

- Identify a Business as Usual (BAU) Baseline for primary energy and carbon emissions.
- How to determine an emissions growth target?
- How to reduce carbon emissions?
- Opportunities in carbon emission reduction.
- Cost to reduce carbon emissions.
- The potential of Clean Development Mechanism(CDM) and permit trading.

Key Economic Assumptions

- Size of the economy, GDP growth rate, and the substitutability between energy services, capital and labor
- Population growth rate
- Rate of technical progress and rate of technology penetration
- Energy resource costs and its interaction with demand and supply technologies
 - Adoption rate of new energy efficient technologies
 - Resource base for oil, gas, coal and renewable
 - Exploration and extraction technologies
- Energy, economic, and environmental characteristics of technologies available to provide energy services
 - Fuel conversion technologies
 - End-use technologies

MARKAL-MACRO Model Structure - 2

- MARKAL is a dynamic linear programming model that is solved over time in 5-year intervals extending from 1995 through 2035. It assumes perfect foresight in the determination of fuel and technology choices, which provide the least cost solution.
- The objective function includes the capital costs of end-use (demand) technologies, capital costs of electricity generating technologies, fuel costs, infrastructure costs (such as pipelines), and operating and maintenance costs.
- The model keeps track of new investments and capital stocks between periods. It searches for a least-cost solution dynamically over the forecast period (1995-2035) to meet user-specified energy service demands.
- Model outputs show primary and end-use fuel consumption, environmental emissions, and investments required to meet the demand for energy services.

MARKAL-MACRO Model Structure - 3

MARKAL Demand Sectors

- End-use demand sectors include:
 - Residential
 - Commercial
 - Industrial
 - Transportation
- The choice of technologies and fuels to satisfy demand for energy services is determined by consumer discount rate, technology characteristics, and fuel prices.

MARKAL-MACRO Model Structure - 4

MARKAL Supply Sectors (1)

Supply sectors include:

- Oil, gas, and coal production, exploration, reserve expansion, and delivery systems
- Renewable technologies
- Petroleum refining to convert crude oil to products
- Electric generation

Supply is determined by fuel prices, demand for energy, cost of capital, and efficiency.

Strengths of MARKAL-MACRO

- MARKAL-MACRO model structure is generic; it can easily accommodate any set of demand specifications and technologies.
- The model solves for the combination of specific energy technologies that satisfies energy service demands at minimum cost.
- It provides an integrated energy, economic, and environmental analysis.
- The model has a long history of use for energy system analysis and a large international user community. The reference energy system (RES) approach has been tested and refined over the past 20 years.

Coal Fired Electric Generation Technologies

- Existing bituminous coal steam electric
- Existing sub bituminous coal steam electric
- Existing lignite steam electric
- Bituminous coal steam electric
- Sub-bituminous coal steam electric
- Lignite coal steam electric
- Coal MHD electric
- Atmospheric fluidized bed
- Pressurized fluidized bed.
- CWM electric
- Repowered existing coal electric
- Integrated coal gasification combined cycle
- Advanced coal turbine system
- Hard coal heating plant
- Coal gasification molten carb fuel cell

Oil & Gas Fired Electric Generation Technologies

- Steam electric residual fuel
- Oil combustion turbine
- ICE diesel electric
- Natural gas combustion turbine, current
- Natural gas combined cycle, current
- Natural gas combustion turbine
- Natural gas steam electric
- Natural gas combined cycle
- Advanced gas combined cycle (2000)
- Advanced gas combined cycle (2010)
- Advanced natural gas turbine system
- Gas fuel cell
- Methanol fuel cell
- Methanol combustion turbine

2/22/99 Kazakhstan Mission/Embassy briefing

workplan - seminar protocol can lay out necessary actions, timeframe

Astana - understanding of issues may not be as deep

- Kaz ministers may prefer to hear from U.S. del

Th: 7 - to Almaty

8:35 - at Ast

10: Daykejev - Min Nat Res + Env Prot

11:30: Abljazov - Min Energy, Industry, + Trade

1:00: Utembayev - Chair Agency for Strategic Planning

3:00: Dzhandosov - Dep PM, Min Finance

4:30: Kahimzhanov - Min State Revenues

8:45: depart for Almaty

Olga Pilobova - w/ modeling - concern econ data to input
current economic situation → K. Barentaev (tech theme #3)

- econ growth - priority of effects - 1) oil prices (+ other commodities)
2) Russian crisis

Opening statements
 since 94 - vulnerability studies
 inventories

mitigation/emissions reduction study - projects
 overview of projection 2020-1990 + 37%.

focus on energy saving, switching, + green belts

92 energy efficiency law

interagency group in Kaz - agreed to sign

interest in intl envs trading → accede Annex I + join Annex B

→ develop clean institution to use allowance sales revenues
 for envl projects

Alkhimov

structural Δ in energy sector necessary - part of econ dev

attract investment to fund new energy projects

plan on adapting regulatory framework

need a new law on envl prot.

Sasha

depts/ministries present - Env, Energy, Foreign Affairs

3 research centers - Kaznirskh, hydromet, center on economy

Energy

- focus on renewables, energy efficiency

- do monitoring

For Affairs

- Erbulat

Kaz Company on Managing Power Grids - Sergey Katyshev
 - strategies for power sector, will make presentation later

Natl Env Ctr - Bulat Y.

- to implement intl envl policies
- draft plans to attract investment for projects
- does analysis of envl projects, monitors projects
- Caspian envl program, testing (military)

Kaznimosh - Piliplhasara

- inventories
- modeling - trends + forecasts
- how GCC can affect Kaz

Economic Institute - Karat Berantayev

- head of dept of macro
- have an energy dept
- evaluate Kaz's readiness of taking on a target

Pilifosara Presentation on GHG Inventory + Projection

- ag emissions no Δ bt 90-94 despite significant $\downarrow$ in ag output

CO_2 inv 90: 226.04 tons of gas (CO_2 -eq)

$$\begin{array}{r} .27 \\ 1582 \\ 452 \\ \hline 61.02 \end{array}$$

95, 98 forecast
varies significantly
→ no faith in GDP forecast

1) what is 1990 - compare inventory, encep, expert analyses

2) what is GDP forecast opt, pes, middle
how do variations in GDP affect forecast
(is $C-GDP < 1$)

3) how do you achieve CO_2 reductions in energy-saving program
- what policy Δ s are envisioned; what are costs how does encep model end-use

4) in collecting data for annual inventories - which areas are greatest challenge

5) can encep be used for auxiliary AQ benchmarks

based on energy demand - how does Δ w/ GDP
energy demand + in 96 and on, except for elec inputs
→ still elec Δ $\downarrow$ - data in chart outdated
need better inventory data for 90 for calibration

Natl Energy Strategy

Sus econ growth depends on energy prices at acceptable levels
 92: 89 bkwk
 94: 104 bkwk ?
 97: 57 bkwk

90 → 92/98 - 2.1x lower industry
 2.8x ag
 4.8x const
 9.1x residential
 16%

forecasts very uncertain
 - data from Strategic Planning
 new hydro in south
 new gas in west
 CHP in future
17.4-25 electricity ?
 1990 - 2015
67-62 energy cons in ?
 1990 2015

one model will not be enough

by 2015 - increase by 1.3 over 95?

2 ¢/kwh ?
 3.5 ¢/kwh consumers } Kar only CIS near int levels

Renewables Potential

thermal 79% (83% is coal, 12% gas)
 gas 12%
 hydro 6
 (w) .7

15-201.00

5

2010 consumption = 1990 consumption

Surplus of supply now - varies geographically - N, W, S

N - energy surplus

W, S - energy deficit

GCC policy requires hydro development

↑ efficiency in using energy sources

→ renewables, ↑ nat gas

mining, petrochemical, fertilizers - energy-intensive - 3x more energy used than in developed countries

Law of Energy Saving

Coal - need to make more competitive

↑ efficiency of boilers (need state of the art tech)

no plans in near term for new plants - ∴ need to replace existing capital

economic + envl benefits from improving coal tech (clean coal tech)

renewables - input subs

↑ electrification to rural areas

potential is huge - hydro - only 1/3 used now

cheapest way to generate power

wind - big potential

solar - H₂O boiling units

associated gas from oil (using gas formerly flared)

20 mt elec

10 mt trans

15 mt

95 WB study

- hydro (sm)

- wind

- solar

ranked by economic potential

elec prices too low for renewables now - C credits would be sufficient to ↑ investment in renewables

Doroshin

CO₂ emission of Kaz energy sector →

get projecting/dtds

2^d overhead
3^d presentation

90: ~155-160

10: ~175-180

total CO₂

90: ~70

10: ~75-80

elec prod CO₂

list of proposed measures for CO₂ emission

3^d overhead

→ key implementation barrier: economic crisis

strategy planning

10/98 - 2030 Development Strategy formally accepted

7 long-term priorities identified - achieving these would $\rightarrow$ good QoL
GCC part of overall development strategy

envl problems - haz waste, military activities waste

Strategy developed in 96/97 - since then, there have been dramatic changes in economic situation

by mid-2000, econ revisions reflecting global economic situation
many energy-intensive industries - smelting,

11% of Kaz covered by forests - arable lands

- forest cover types not amenable to sequestration

not many opportunities in sinks, $\therefore$ most focus on improving E/GDP

Some mathematic modeling of GDP done for forecasts

- w/ TACIS

no model can be absolutely right

using several models

Expected higher GDP rate - next presentation to give details

Will create conditions to $\uparrow$ GDP

- develop machine building, chem, petrochem, processing industries
will likely entail $\uparrow$ GHGs, can apply new tech + slow rate of growth of emis

$\rightarrow$ emis would grow slower than output
need investments

1) sees as share of economy

2) range of GDP - what are driving factors for Δ in GDP - near + long term

what are official GDP forecasts? where are they published?

- don't have those
- statistics agency does forecast
- econ research institutes

present

ag share should be 15%

can't Macro overview

some 95/96 goals achieved - low infl, low budget deficit

- 2.5% (last yr) → infl financial crisis

commodity prices (loss of \$1.5b)

- oil vol ↑ while oil revenues ↓

manuf - 34%,

Svcs - 60%.

∴ all goals of development not reached

exports fell 10%, while imports ↑

w/ Russia destabilization, maintained Tenge at cost of \$600m

- will have an issue of servicing foreign debt over next several yrs

est. growth rate 4%, if 100% tax collection... ?

1 scenario - long-term stagnation - 0% growth thru 2010

nonpayment is biggest issue in projecting GDP

used model to forecast to 2003, and then make long-term projections

inputs to model - demographics, growth in ag + others?

presents 2 of 4 scenarios

→ 2003 growth: 1%/yr 2004-10: 2.5% after: 7%.

1990 met @ 2015-2018

GDP + emissions may not track well

our data more accurate than official

* emissions in industry higher?
 overhead on econ output + emis (+ sectors) → get + translate

1990 level 4 scenarios
 2015
 2018

>2030 1st scenario

2030 strategy - goals to be developed, GDP per capita $< \$2000$
 2030 - 4x higher - not realistic
 would require 7-8% growth

Some research on energy-econ output relationship
 - Siberian Research Institute

intersectoral model - modified IO model

(get his data) *

promote transparency in process

WB experience

difference in trans costs bt trading + JI/CDM will be evaluated

want to develop a project pipeline

methodology of incremental cost analysis

baseline scenario developed - project-by-project basis

focus on energy sector

- should start w/ policy level improvements

- many potential improvements in Kaz

Kazakh tariff structure (based on "distance") reform
prioritization

- displace coal w/ new cleaner capacity (eg gas-fired)
(for elect + heat)

displacement difficult given existing over capacity

- id of potential buyers of elect is critical - substantial gains possible in Kaz

- 2 ways of reducing emms

- 1) focus on lg blocks of energy production - this is preferable
~~eg renewable~~

- 2) program ~~items~~ of GEF (includes renewables)

- issues - end use prices of elect + heat (calculated w/ + w/o C credits)
unit abatement costs

- feasibility - full financial packages necessary for evaluation - ~~Kaz f~~ doing

Sandalow

- raise Kaz issue - Am I or 3rd way
soon in DC

Qs e liability
sinks in trading

Ag review

since 94 - no fertilizer use

forest + 3.7% of Kaz now 5% in 2010

4000 g/yr now

atmosphere - 300-650 g/yr

pastures

forestry 90 → 94 - C sinks greater in 94

after planting, post-fires regrowth

envl charges for SO_2 in Kaz

Bulat

~ \$4/ton C Almaty for SO_2

compliance very low

has legal system for envl charges, revenues are
supposed to be dedicated for envl projects, but not
the case to date

Draft

↑ public understanding: UNDP-USAID
env ministry has program + incl all
use NGOs

III 1 is high priority, should be accomplished prior to BAU projections from long-term perspective, III 2 should be dealt with

IV 2 - "organizational, economic, + legal" before components
forecast
costs
inventory

} use this for targets - Delat's priorities
for target by
COP-5

VIII 1 - Δ begin to continue, include other donors

МАКРОЭКОНОМИЧЕСКИЕ СЦЕНАРИИ РАЗВИТИЯ КАЗАХСТАНСКОЙ ЭКОНОМИКИ НА ПЕРСПЕКТИВУ

К настоящему моменту можно констатировать, что Республика Казахстан вышла на новый этап своего экономического развития.

Основанием для этого служит то, что основные задачи макроэкономической политики 1998 года, несмотря на финансовый кризис в странах Юго-Восточной Азии, России и ряде других стран, практически реализованы. В результате последовательно проводимой в течение 1996-1998 г.г. жесткой монетарной политики, доминантой которой были снижение уровня инфляции и поддержание низкого бюджетного дефицита, в республике удалось достичь макроэкономической стабилизации, что расценивается как создание реальных предпосылок для оживления реального сектора экономики.

С другой стороны, резкое ухудшение мировой конъюнктуры в связи с финансовым кризисом в странах Юго-Восточной Азии и Российской Федерации серьезно осложнило экономическую ситуацию в Казахстане, привело к существенным потерям из-за снижения мировых цен на группу товаров, которые составляют основу казахстанского экспорта. Согласно данным и предварительной оценке Нацстатгентства РК объем реального ВВП в 1998 году снизился по сравнению с 1997 годом на 2,5%.

В целом макроэкономические показатели развития экономики республики, которые приведены в таблице 1.

Таблица 1

Динамика основных макроэкономических показателей
функционирования казахстанской экономики в 1996 - 1998 годах

	1996 г.	1997 г.	1998 г.			
			I	II	III	За год
ВВП в текущих ценах, млрд. тенге	1415,7	1679,6	402,8	419,9	448,4	1744,7
ВВП в % к соответствующему периоду предыдущего года	100,5	102,0	101,9	99,5-100,6	98,0-98,5	93,3-97,5

При этом в структуре ВВП произошли некоторые изменения в худшую сторону. В течении этого года в структуре ВВП последовательно снижается доля производства товаров - 34-35% против 37,9% в 1997 г. Доля промышленности составит - 23-24% против 21,4%, сельского хозяйства - менее 9% против 11,5%. Одновременно, доля производства услуг возрастет с 55,9% до 65-66%, доля чистых налогов осталась на уровне 5-6%.

Такая структура близка к структуре ВВП многих развитых стран. Это можно было бы рассматривать как успех экономической политики последних лет, если бы он не был достигнут за счет продолжающегося спада производства в реальном секторе экономики.

Поэтому не достигнута основная цель правительственной программы - прекращение спада производства и начало оживления экономики.

На развитие казахстанской экономики в 1999 и последующих годах будет продолжать оказывать сильное влияние ряд внешних и внутренних факторов, действие которых могут предоставить потенциальную угрозу для экономической безопасности Республики Казахстан. Наиболее важными из них являются:

Сохранение курса проводимой макроэкономической политики, которая направлена на удержание уровня инфляции до нескольких процентов в год и дефицита государственного бюджета в пределах, соответствующих среднемировым стандартам, обеспечение стабильности обменного курса тенге даже в ущерб золотовалютным резервам. Такая политика не учитывает состояние реального сектора экономики, не удовлетворяет требованиям защиты отечественного производителя. Продолжение жесткой финансовой и денежно-кредитной политики ведет к дальнейшему обострению платежного кризиса в республике и в немалой степени способствует спаду производства в реальном секторе экономики.

Снижение мировых цен на группу товаров, которые составляли основу казахстанского экспорта, привело к сокращению экспортных поставок Казахстана. Даже при увеличении или более медленном спаде физических объемов экспорта, экспортоориентированные отрасли промышленности испытывают последствия кризиса, несут убытки из-за сужения рынков сбыта и снижения мировых цен, резко снизилась рентабельность производства экспортоориентированного сектора.

Девальвация валют в ряде стран (в первую очередь в России) при сохранении относительной стабильности тенге за счет сокращения золотовалютного резерва ведет к росту импорта в Казахстан, ухудшает положение внутреннего товаропроизводителя за счет дальнейшего роста конкуренции на внутреннем рынке с импортируемыми товарами.

Рост государственных расходов по обслуживанию внешнего долга страны. Эта проблема усугубляется тем, что не только растут затраты на обслуживание внешнего государственного долга в связи с выплатой основного долга, но и уменьшается экспортный потенциал страны из-за неблагоприятной конъюнктуры мирового рынка.

Социально-экономическое развитие Республики Казахстан в 1999-2003 годах рассматривается в рамках двух наиболее вероятных сценариях, которые направлены на преодоление кризисного состояния экономики республики, создание реальных предпосылок для ее оживления и вывода на траекторию устойчивого роста, что предусмотрено Стратегией развития страны «Казахстан – 2030».

Первый сценарий не предполагает кардинальных изменений в проводимой экономической политике. Это наглядно видно из проектов Индикативного плана на 1999 год и Государственного бюджета на следующий год. Исходя из этих предпосылок были проведены расчеты по оценке условий экономического роста при заданных параметрах денежно-кредитной и бюджетно-налоговой политики на 1998-1999 г.г.

Таблица 2

Расчетные темпы роста ВВП на 1999 год

	1996 год	1997 год	1998 год	1999 год
1	2	3	4	5
ВВП в текущих ценах	1419.90	1679.60	1747,7	1950
Государственные расходы	264.90	318.50	407.00	472,2
Инвестиции – всего,	119.00	115.00	170.00	186,0
в т.ч. государственные	9.50	19.70	25.00	27,9
Государственные расходы и инвестиции.	374.40	413.80	551,8	630,0
Сумма налоговых поступление.	132.90	203.80	276,6	328,4
Норма инвестирования	0.084	0.068	0.09	0,07
Удельный вес налогов в ВВП.	0.094	0.121	0.122	0,155
Мультипликатор инвестиций	3.792	4.059	3.23	3,09
Относительный дефицит бюджета	0.093	0.068	0.073	0,074
Уровень инфляции	0.287	0.138	0.07	0,095
Инфляционный потенциал	0.550	0.280	0.18	0,18
Пороговая инфляция	0.401	0.212	0.072	0,098
Расчетные темпы прироста ВВП	-0.096	-0.053	-0.09	-0,04

В этом случае, как видно из таблицы 2, в 1999 году в лучшем случае наиболее вероятен экономический спад до 4%. В этом случае можно предположить, что экономического роста не будет и Республика Казахстан выходит на траекторию стагнации экономики.

Для разрешения этой ситуации необходимо же сейчас пересмотреть подходы к формированию макроэкономической политики в сторону увеличения совокупного спроса.

Второй сценарий в этой связи предполагает кардинальное разрешение проблемы неплатежей, в том числе путем **дополнительной денежной эмиссии девальвации национальной валюты**, чтобы ликвидировать демонетизацию экономики, привести уровень развития денежного хозяйства в соответствие с потребностями реального сектора экономики.

Денежная эмиссия и другие экстренные меры должны быть дополнены одновременно с нетарифными мерами по защите отечественных товаропроизводителей.

По этому сценарию можно ожидать, что до середины 1999 года экономический спад продолжится, а после расшивки неплатежей возможно снижение темпов экономического спада и, даже, незначительный экономический рост к началу 2000 года. В результате принятия этого сценария,

вероятнее всего то, что казахстанская экономика выйдет на траекторию продолжительной стагнации или экономического роста с темпами 2-3% в год.

Длительное сохранение достаточно низких цен на нефть на мировом рынке, по мнению ряда экспертов, продержится до 2000 года. На развитие топливно-энергетического сектора в определенной мере скажется отсутствие реальной договоренности между прикаспийскими странами о статусе Каспийского моря и принципах раздела каспийского шельфа. Затягивание переговоров по этой проблеме в определенной мере скажется на начале работ по освоению каспийского шельфа и строительству сети евразийских магистральных нефтепроводов.

На развитие нефтедобычи в Республике Казахстан, особенно в части увеличения экспортной нефти, сильное влияние окажет развитие геополитической ситуации, в частности политика стран ОПЕК, ослабление санкций ООН против Ирака, а также гармонизация взаимоотношений по взаимопоставкам нефти с Россией.

На развитие экспортного потенциала республики безусловное влияние окажет неблагоприятная конъюнктура цен на мировом рынке на черные и цветные металлы, зерно и ряд других продуктов, которые составляют основу казахстанского экспорта.

В соответствии с этим можно предполагать, что развитие отраслей, связанных с производством экспортной продукции, окажется ниже, чем предусмотрено проектом первого варианта. Более вероятным становится сохранение их производства на уровне 1997 года или уровне, предусмотренных планом текущего года.

В целом по данному сценарию, можно ожидать, что даже при реализации Правительством Республики Казахстан своей Программы действий в полном объеме в рассматриваемом периоде не удастся преодолеть экономический кризис и экономика республики к 2003 г. возможно будет находиться на уровне 1997 — 1998 годов.

В соответствии с этим при помощи модели межотраслевого баланса были проведены предварительные расчеты по оценке макроэкономических показателей экономического развития республики на 1999-2003 годы.

Расчеты показали, что в зависимости от темпов инфляции ожидается рост реального ВВП в 2003 г. по отношению к 1998 г. от 1-2% до 8-9% против 21.7%, предусмотренных планом. Более низкие темпы экономического роста обусловлены учетом влияния тех внешних и внутренних факторов, которые не были учтены при подготовке целевых показателей Индикативного плана. Реалистичность данного прогноза определяется тем, что, как показали расчеты, отраслевая структура промышленности за это период не претерпит существенных изменений. Однако при реализации этого сценария имеется возможность усиления позитивного воздействия на экономический рост отдельных факторов и уменьшения негативного влияния других факторов путем проведения активной государственной политики, усиления роли государственного регулирования экономики.

В этой связи можно считать, что к 2003 году казахстанская экономика окажется на уровне 1998 года или несколько выше.

Расчеты на более длительную перспективу показали, что в зависимости от выбранного варианта развития страны, который определяется макроэкономической политикой, можно с большой долей вероятности предполагать, что за пределами 2003 года развитие казахстанской экономики

будет идти незначительными среднегодовыми темпами роста около 2-3% в 2004-2010 и 4-5% в 2011-2020 г.г. Только за пределами 2020 года возможно при благоприятных условиях ускорение темпов экономического роста 7-10% в среднем за год.

В соответствии с выполненными расчетами объем реального ВВП достигнет дореформенного периода не ранее 2015-2020 года. Важно отметить, что преимущественное развитие получают в основном отрасли тяжелой промышленности, которые сохраняют специализацию республики в международном разделении труда. При этом показатели энергоемкости и электроемкости ВВП останутся на достаточно высоком уровне.

Таблица 3

Основные показатели энергопотребления Республики Казахстан.

Показатели	1990	1991	1992	1993	1994	1995	1996	1997
Валовой внутренний продукт (в ценах 1995 г.), млрд. тенге	2782	2373	2036	1598	1141	992,5	972,6	982,3
Электропотребление, млрд. кВт. ч	104,7	101,6	97,0	89,1	79,4	73,4	67,6	57,1
Производство электроэнергии, млрд. кВт. ч	87,4	86,0	82,7	77,4	66,4	66,6	61,9	52,2
Дефицит (-), избыток (+) электроэнергии, млрд. кВт. ч	-17,3	-15,6	-14,3	-11,7	-13,0	-6,8	-5,7	-4,9
Потребление топливно-энергетических ресурсов, млн. т у.т.	100,5	100,2	98,8	95,5	85,0	81,2	76,4	72,5
Удельная электроемкость ВВП, кВт. Ч/тенге	0,038	0,043	0,048	0,056	0,069	0,074	0,070	0,058
Удельная энергоемкость ВВП, т у.т./тыс. тенге	0,036	0,042	0,048	0,06	0,074	0,082	0,078	0,074
Потребление электроэнергии на душу населения, кВт. ч/чел	6271	6069	5760	5241	4698	4395	4230	3600
Валовое потребление первичных ТЭР на душу населения, т.у.т./чел	6,02	5,99	5,84	5,62	5,03	4,86	4,74	4,57

За рассматриваемый период удельная электроемкость ВВП увеличилась более, чем в 1,5 раза, энергоемкость - более, чем в 2 раза. Такой показатель НТП как потребление электроэнергии на душу населения снизился более, чем на 40%. В этой связи важной перспективной проблемой становится проблема энергосбережения, т.к. после 2020 года при неблагоприятных условиях Казахстан по уровню выбросов может достигнуть уровня 1990 г.

MACROECONOMIC SCENARIOS OF THE KAZAKHSTAN'S ECONOMY DEVELOPMENT FOR THE PROSPECTS

By now it may be ascertained that the Republic of Kazakhstan get out on the new stage of its economic development.

The basis of this is the fact that the principal objectives of the macroeconomic policy of 1998, despite the financial crisis in the South-East Asian countries, Russia and some other countries, have been practically realized. As the result of the tough monetary policy consistently pursued during 1996-1998 the dominant of which was the decrease of the inflation level and maintaining of low budget deficit, the macroeconomic stabilization in the Republic has been attained that can be considered as creation of the actual prerequisites for revival of the economy.

On the other hand, a drastic deterioration of the world economic situation in the context of the financial crisis in the countries of the South-Eastern Asia and in the Russian Federation has seriously aggravated the economic standing of Kazakhstan, resulted in substantial financial losses through lowering of the world market prices for the group of the goods forming the basis of the Kazakhstan's export. According to the data and estimates of the National Statistical Agency of the RK the volume of the actual gross domestic product (GDP) in 1998 has dropped by 2.5% in 1998 as compared with 1997.

As a whole, the macroeconomic indicators of the Republic's economy development are given in Table 1.

Table 1

Dynamics of the Principal Macroeconomic Indicators of the Kazakhstan Economy Functioning in 1996-1998

	1996	1997	1998			
			I	II	III	In a year
GDP in current prices, Billion Tenge	1415.7	1679.6	402.8	419.9	448.4	1744.7
GDP in % to the respective period of previous year	100.5	102.0	101.9	99.5 - 100.6	98.0 - 98.5	93.3 - 97.5

Therewith in the GDP structure certain changes have occurred to the worse side. During this year the share of the goods production in the GDP structure is subsequently decreased : 34-35% as compared with 37.9% in 1997. The share of the industry will account for 23-24% as against 21.4% and of the agriculture: less than 9% as against 11.5%. Concurrent with this, the share of the production of services will increase from 55.9% to 65-66%, the share of the net taxes remained on the level of 5-6%.

Such structure is similar to the GDP structure of many developed countries. This could be considered as success of the economic policy of the recent years if it was not achieved at the account of the continuing decline of production in the real sector of economy.

Thus, the principal objective of the government program: the stoppage of decline in production and beginning of the economy revival - has not been achieved.

A series of internal and external factors which can bring the potential threat to the economic safety of the Republic of Kazakhstan will continue to have a pronounced effect on development of Kazakhstan's economy in 1999 and during the succeeding years. The most important of these factors are the following:

Maintaining of the course of the macroeconomic policy conducted which is aimed at restraining of the inflation level within few percentages during the year and of the government budget deficit within the limits corresponding to the average world standards, and ensuring of the exchange rate stability even to the prejudice of the gold reserves. Such policy doesn't consider the state of the real sector of economy, doesn't meet the requirements of the domestic producer protection. Continuation of tough financial and monetary policy leads to further aggravation of the payment crisis in the Republic and in considerable degree contributes to the decline of production in the real sector of economy.

Decrease of the world market prices for the group of the goods constituting the basis of the Kazakhstan's exports tended to reduction of the export deliveries from Kazakhstan. Even in case of increase or slower decline of the physical volumes of exports, the export-oriented branches of the industry are subjected to the implications of the crisis, incur losses because of the sales market narrowing and decline in the world market prices, and the production profitability of the export-oriented sector has drastically dropped.

The currency devaluation in a number of countries (first of all in Russia) on retaining the relatively stability of Tenge by reducing the gold and foreign currency reserves produces the growth of imports to Kazakhstan, aggravates the state of the domestic commodity producer owing to the further growth of competition on the domestic market with the import goods.

Increase in the national spending for servicing the foreign debt of the country. This challenge is aggravated by the fact that not only the expenditures grow for servicing the foreign national debt in connection with repayment of the primary debt, but the export potential of the country decreases owing to the unfavorable world market conditions.

The social and economic development of the Republic of Kazakhstan in 1999-2003 should be considered in the context of two more probable scenarios aimed at the overcoming of the crisis state of the republic's economy, creation of actual prerequisites for its revival and placing it on the path of sustainable growth which is stipulated by the Strategy for the country development «Kazakhstan - 2030».

Table 2

The Estimated Rates of the GDP Growth for 1999

Indicators	1996	1997	1998	1999
1	2	3	4	5
GDP in current prices	1419.90	1679.60	1747.7	1950
Public expenditures	264.90	318.50	407.00	472.2
Investments - total	119.00	115.00	170.00	186.0
incl. governmental	9.50	19.70	25.00	27.9
Public expenditures and investments	374.40	413.80	551.8	630.0
Amount of the tax proceeds	132.90	203.80	276.6	328.4
Investment rate	0.084	0.068	0.09	0.07
Specific weight of taxes in the GDP	0.094	0.121	0.122	0.155
Investment multiplier	3.792	4.059	3.23	3.09
Relative budget deficit	0.093	0.068	0.073	0.074
Level of inflation	0.287	0.138	0.07	0.095
Inflation potential	0.550	0.280	0.18	0.18
Threshold inflation	0.401	0.212	0.072	0.098
Estimated growth rates of the GDP	-0.096	-0.053	-0.09	-0.04

The first scenario doesn't presuppose the fundamental alterations in the economic policy perused. It is clearly obvious from the drafts of the Indicative Plan for 1999 and the National Budget for the next year. With these assumptions the estimates were made as to assessment of the economic growth conditions at the given parameters of the monetary, budget and tax policy for 1998-1999.

In this case, as viewed in Table 2, in 1999, at best, the most probable there will be the economic recession up to 4%. In such a situation, it may be supposed that there will be no economic growth, and the Republic of Kazakhstan goes to the path of the stagnation of the economy.

In order to settle this situation it is essential just now to revise the approaches to the macroeconomic policy formation towards increase in the aggregate demand.

In this connection **the second scenario** contemplates the major solution of the problem of non-payments, in particular, by supplementary emission of money and the national currency devaluation in order to eliminate the demonetization of the economy and to bring the level of the monetary economy development into agreement with the requirements of the real sector of economy.

The currency emission and other emergency measures should be at the same time supplemented by the non-tariff actions for protecting the domestic commodity producers.

By this scenario it may be anticipated that up to the middle of 1999 the economic recession will be still in progress but following the settlement of the problem of non-payments the decrease in the rates of the economic recession is possible and, even, a minor economic growth is feasible to the beginning of 2000. Most likely the result of this scenario adoption is bound to be the fact that the Kazakhstan's economy will go to the path of prolonged stagnation or of the economic growth with the rates 2-3% per year.

The long-term maintenance of relatively low prices for the oil on the world market, to some experts opinion, will stay up to 2000. The lack of the actual agreement among the pre-Caspian countries as to the Caspian Sea status and principles for the Caspian shelf sharing will make a certain impact on development of the fuel and power sector. The delay in the negotiations concerning this challenge will tell, to a certain extent, on the beginning of the Caspian shelf development and construction of the Euro-Asian main oil pipe-lines network.

A profound effect on the oil production development in the Republic of Kazakhstan will be made by development of the geopolitical situation, in particular, the policy of the OPEC countries, the easing of the UNO sanctions against Iraq, as well as harmonization of interrelations as to the mutual oil deliveries with Russia.

Undoubtedly, the development of the export potential of the Republic will be effected by unfavorable world market price conditions for the ferrous and non-ferrous metals, grain and series of other products constituting the base of the Kazakhstan's export.

In line with this it may be assumed that development of the branches associated with output of the export products will be lower than it was stipulated by the draft of the first version. It becomes more probable that their production will be maintained on the level of 1997 or on the level specified by the current year plan.

As a whole by this scenario it may be anticipated that even in case of complete realization by the Government of the Republic of Kazakhstan of its Program of Actions, during the period under review it would be impossible to overcome the economic crises, and the economy of the Republic up to 2003 will be likely on the level of 1997-1998.

In line with this some preliminary estimates were made by the intersectoral balance model for assessment of the macroeconomic indicators of the economic development of the Republic for 1999-2003.

The calculations indicated that depending upon the inflation rates the growth of the actual GDP is anticipated in 2003 as compared with 1998 from 1-2% to 8-9% against 21.7% stipulated by the plan. The more low rates of the economic uprising have been defined considering the effect of those external and internal factors which were not taken into account while preparing the target indicators of the Indicative Plan. The

feasibility of this forecast is defined by the fact that, as calculations showed, the sectoral structure of the industry over this period will remain without essential changes. However on realizing this scenario there is a possibility to strengthen the positive influence on the economic growth of certain factors and to decrease the negative influence of other factors by pursuing active national policy and intensifying the role of the national regulation of the economy.

In this connection it may be considered that by 2003 the Kazakhstan's economy will be on the level of 1998 or somewhat higher.

The computations for more long perspective have demonstrated that depending on the country development version selected being specified by the macroeconomic policy it may be assumed that beyond 2003 the development of Kazakhstan's economy will go with slight average annual growth rates about 2-3% in 2004-2010 and 4-5% in 2011-2020. Only after 2020, under favorable conditions, the acceleration of the economic growth rates is possible at 7-10% in average per year.

Table 3

**The Primary Indicators of the Power Consumption
in the Republic of Kazakhstan**

Indicators	1990	1991	1992	1993	1994	1995	1996	1997
Gross domestic product (in current prices of 1995), billion Tenge	2782	2373	2036	1598	1141	992.5	972.6	982.3
Power consumption, billion kWh	104.7	101.6	97.0	89.1	79.4	73.4	67.6	57.1
Electricity generation billion kWh	87.4	86.0	82.7	77.4	66.4	66.6	61.9	52.2
Deficit (-), surplus (+) of electric power, billion kWh	-17.3	-15.6	-14.3	-11.7	-13.0	-6.8	-5.7	-4.9
Consumption of fuel and energy resources (FER), mln t of equivalent fuel	100.5	100.2	98.8	95.5	85.0	81.2	76.4	72.5
GDP specific energy intensity, kWh/Tenge	0.038	0.043	0.048	0.056	0.069	0.074	0.070	0.058
GDP specific power intensity, t of fuel equiv./thous. Tenge	0.036	0.042	0.048	0.06	0.074	0.082	0.078	0.074
Power consumption per capita, kWh/man	6271	6069	5760	5241	4698	4395	4230	3600
Gross consumption of primary FER per capita, t of fuel equiv./man	6.02	5.99	5.84	5.62	5.03	4.86	4.74	4.57

According to the calculations made, the real GDP volume will reach the pre-reforms period level no earlier than in 2015-2020. It is important to notice, that the preferential development will be given to, primarily, the branches of the heavy industry which maintain specialization of the Republic in the international division of labor. In this case the indicators of the GDP power intensity and energy intensity will remain on relatively high level.

Over the period reviewed the specific energy - output ratio of the GDP increased by more than 1.5 times, power intensity - more than by 2 times. Such GDP indicator as the electric power consumption per capita decreased by more than 40%. In line with it the problem of the energy saving becomes the essential problem in the future because after 2020 Kazakhstan, under unfavorable conditions, as to the emissions levels may attain the level of 1990.

***Technical Seminar on Aspects of Greenhouse Gas Emissions in Kazakhstan
Alatau Sanatorium, 22-24 February 1999***

Monday, February 22:

Evening:

7:00- 10:00 Reception at Alatau

Tuesday, February 23: Seminar, Day 1

9:00- 10:30 Opening remarks by representatives of GOK and USG.

Moderators - J. Moitke and B. Esekin

10:30: Coffee Break

11:00-1:00 **Technical Theme #1: *Measurement & Analysis of GHG Emissions Growth***

Moderator - I. Burnbaum

- 1) Presentation regarding the status of Climate Change modeling in Kazakhstan, to be conducted by Olga Pilifosova, Head of Climate Change Laboratory, KazNIMOSK.
- 2) Presentation regarding state-of-the-art GHG inventories for CO₂ and other gasses, to be conducted by Stephanie Bencovic of EPA

1:00-2:00 Lunch

2:00- 3:00 **Technical Theme #2: *Strategy of Development of the Energy Sector in Kazakhstan***

Moderator - A. Golub.

- 1) Presentation of the new National Strategy in Energy, (S. Katyshev)
- 2) A view of Greenhouse Gas Emissions from the Energy Sector (K. Suleimenov)

3:00: Coffee Break

3:30- 5:30 **Technical Theme #3: *Presentation of the availability of economic data and the status of macroeconomic modeling in Kazakhstan***

Moderator - A Golub.

- 1) Macroeconomic scenarios used by the government of Kazakhstan presentation from Ministry of Strategic Planning, (S. Tanibergen)
- 2) Sectoral data and scenarios available presentation from the Kazakhstan Institute of Economic Research Under Ministry of Energy, Industry and Trade (K. Berentaev)

6:00: Dinner

7:30- 9:30 Reception at the home of T. Streit

Wednesday, February 24: Seminar, Day 2

9:00- 10:30 **Technical Theme #4: *Western Experience with Modeling***

Moderator - F. Guymont

- 1) A US perspective on data availability and experience in creation of macroeconomic scenarios presented by Global Securities (S. Lawerne)
- 2) A World Bank presentation on development of the *National Strategy Study* for Kazakhstan (TBA)
- 3) The use of economic modeling tools are in decisionmaking in the United States presented by Council of Economic Advisors representative (J. Aldy).

10:30: Coffee Break

11:00-12:00: **Technical Theme #5: *Sinks and Ancillary Benefits of GHG mitigation***

Moderator - K. McNamara

- 1) Sinks and ancillary benefits, presented by Department of Energy representative (P. Karpoff)
- 2) Kazakhstan's sink potential, presented by representative of the Ministry of Agriculture (E. Gossen)

12:00- 1:00: *Improving Public Understanding of Climate Change and a Proposed Integrated Strategy for GHG Emissions Reductions* - Presentation by National Ecological Center representatives (S. Yelkin, B. Esekin)

Moderator - A. Golub.

1:00- 2:00: Lunch

2:00 - 3:00 Discussion: *Strategy for the Future: Politics and Institutions for Effective Response to Climate Change* - Roundtable discussion of proposed protocol.

Moderator - A. Golub.

3:00: Coffee Break

3:30- 5:00: Concluding Discussion: *Roles and Responsibilities: Areas for Kazakh-US Cooperation.*

Moderator - A. Golub

**Technical Seminar on Aspects of
Greenhouse Gas Emissions in Kazakhstan**

**22-24 February 1999
Almaty, Kazakhstan**

LIST OF INVITEES

NAME AND ORGANIZATION	ИМЯ И ОРГАНИЗАЦИЯ
Jeffery Miotke Deputy Director Office of Global Climate Change Department of State	Джеффри Миотке Заместитель директора Офиса по глобальному изменению климата Государственного департамента
Daniel Balzer Office of Global Climate Change Department of State	Даниэль Балзер Офис по глобальному изменению климата Государственного департамента
Joseph Aldy Member of President's Council of Economic Advisors	Джозеф Алди Член Совета экономистов при президенте
Peter Karpoff Senior Economist Office of Economics Department of Energy	Питер Карпов Главный экономист офиса экономики Департамента энергетики
Stephanie Bencovic Environmental Engineer Environmental Protection Agency	Стефани Бенкович Инженер по природоохранной политике Агентство по охране окружающей среды
Ira Birnbaum Team Leader for Energy Efficiency and Global Climate Change Environment, Energy and Urban Development/ Europe and NIS Bureau USAID	Айра Бернбаум Руководитель отдела по рациональному использованию энергетических ресурсов и глобальным климатическим изменениям офиса по окружающей среде, энергетике и урбанизации ЮСАИД
Frederick Guymont Deputy Director Environment, Energy and Urban Development/ Europe and NIS Bureau USAID	Фредерик Гаймонт Заместитель директора офиса по окружающей среде, энергетике и урбанизации ЮСАИД
Stephen Lewarne Director of Research and Corporate Finance Central Asia and Caucasus Global Securities Tel. (3272) 509-480	Стивен Леворн Директор отдела исследований и корпоративных финансов по Средней Азии и Кавказу «Global Securities»
Asylzhan Akhmetov Head Mazhilis Ecological Committee Tel. (3172) 326-969 Fax (3172) 327-781	Асылжан Ахметов Руководитель Комитета по экологии при Мажилисе РК
Erbulat Sembayev First Secretary of First Department Ministry of Foreign Affairs Fax (3172) 327-667	Ербулат Сембаев Первый секретарь первого отдела Министерства иностранных дел

Murat Musataev Vice Minister Ministry of Ecology and Natural Resources Tel. (31622) 5-42-69 Fax (31622) 5-06-20	Мурат Мусатаев Вице-министр Министерства экологии и природных ресурсов
Saidmurat Tanibergen Deputy Director Department of Economic Policy and Special Programs Agency on Strategy Planning and Reforms of Republic of Kazakhstan Tel. (3172) 326-398 Fax (3172) 326-358	Саидмурат Таниберген Заместитель директора Департамента экономической политики и специальных программ Агентства по стратегическому планированию и реформам РК
Kalkaman Suleimenov Head Department of Scientific Progress and Environment Ministry of Energy, Industry and Trade Tel. (3172) 102-474 Fax (3172) 337-164	Калкаман Сулейменов Начальник отдела научно-технического прогресса и экологии Министерства энергетики, индустрии и торговли
Alexander Golub Advisor HIID	Александр Голуб Советник Гарвардский институт международного развития
Kanat Berentayev Kazakh Institute of Economic Research under the Ministry of Energy, Industry and Trade	Канат Берентаев Казахский институт экономических исследований при Министерстве энергетики, индустрии и торговли
Nadezhda Fiedorova Kazakh Institute of Economic Research under the Ministry of Energy, Industry and Trade Tel. (3272) 331-992	Надежда Федорова Казахский институт экономических исследований при Министерстве энергетики, индустрии и торговли
Viktor Loksha World Bank	Виктор Локша Всемирный Банк
Bulat Esekin Director National Environmental Center Tel. (31622) 5-55-37	Булат Есекин Директор Национального экологического центра
Sergey Elkin Deputy Director National Environmental Center Tel. (31622) 5-55-37	Сергей Елькин Заместитель директора Национального экологического центра
Atamurad Shamen Director Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Атамурад Шамен Директор Казахского института мониторинга климата и окружающей среды
Dmitry Donchuk Research Fellow Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Дмитрий Дончук Научный сотрудник Казахского института мониторинга климата и окружающей среды
Olga Piliphosova Head Climate Change Study Laboratory Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Ольга Пилифосова Руководитель лаборатории по изучению изменения климата Казахского института мониторинга климата и окружающей среды

Irina Eserkepova Senior Research Fellow Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Ирина Есеркепова Старший научный сотрудник Казахского института мониторинга климата и окружающей среды
Svetlana Dolgikh Senior Research Fellow Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Светлана Долгих Старший научный сотрудник Казахского института мониторинга климата и окружающей среды
Svetlana Mizina Senior Research Fellow Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Светлана Мизина Старший научный сотрудник Казахского института мониторинга климата и окружающей среды
Tleusen Temertekov Leading Engineer Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Тлеусен Темертеков Ведущий инженер Казахского института мониторинга климата и окружающей среды
Georgy Papaphanasopulo KAZNIPIENERGO Tel. (3272) 333-936 Fax (3272) 333-298	Георгий Папафанасопуло КАЗНИПИЭНЕРГО
Anatoly Korzhnetsky Main Engineer KAZNIPIENERGO Tel. (3272) 333-549	Анатолий Коржнетский Главный инженер КАЗНИПИЭНЕРГО
Gennady Doroshin Kazakh Scientific and Research Institute of Energy Tel. (3272) 640-771	Геннадий Дорошин Кандидат технических наук Казахский НИИ Энергетики
Sergey Katyshev Head of Strategy Planning Department JSC KEGOC Tel. (3272) 682-730 Fax (3272) 68-43-08	Сергей Катышев Начальник отдела по стратегическому планированию АО «KEGOC»
Ervin Gossen Member of Agriculture Department of National Academy of Sciences of Republic of Kazakhstan Tel. (3272) 543-709 Fax (3272) 543-719	Эрвин Госсен Член сельскохозяйственного отделения Национальной Академии наук РК
Oleg Dalabayev Vice President Kazselenergoproject	Олег Далабаев Вице-президент АО «Казсельэнергопроект»
Iosif Vilkoviskiy Head Engineer Almatygidroproject	Иосиф Вильковиский Главный инженер Алматыгидропроект
Irina Kubassova Head of Department on Harmonization of Legislation Documents Main Law Administration Tel. (3272) 633-284	Ирина Кубасова Начальник отдела по гармонизации законодательных актов Главного правового управления

Baurzhan Duisebaev Deputy of General Director on new technologies Complex Processing of Mineral Raw Materials National Center of Republic of Kazakhstan Tel. (3272) 618-038 Fax (3272) 696-134	Бауржан Дуйсебаев Заместитель Генерального директора по новым технологиям Национального центра комплексной переработки минерального сырья Республики Казахстан
Vladimir Cherednichenko Head Chair of Meteorology Kazakh State University Tel. (3272) 462-615	Владимир Чередниченко Заведующий кафедрой метеорологии Казахского государственного университета
Liliya Dimeeva Senior Research Fellow Institute of Botany Tel. (3272) 61-56-70 Fax (3272) 61-79-38	Лилия Димеева Старший научный сотрудник Института ботаники
Zharas Takenov Senior Sustainable Development Advisor UNDP Tel. (3272) 640-970 Fax (3272) 642-608	Жарас Такенов Старший советник по устойчивому развитию ПРООН
Organizers	
Barry Primm Director Office of Energy and Environmental Initiatives USAID Tel. (3272) 507-612 Fax (3272) 507-636 E-mail: bprimm@usaid.gov	Барри Примм Директор офиса энергетики и окружающей среды ЮСАИД
Ken McNamara Environmental Project Specialist Office of Energy and Environmental Initiatives USAID Tel. (3272) 507-612 Fax (3272) 507-636 E-mail: kmcnamara@usaid.gov	Кен МакНамара Специалист по охране окружающей среды офиса энергетики и окружающей среды ЮСАИД
Theodore Streit Energy Policy Specialist Office of Energy and Environmental Initiatives USAID	Теодор Страйт Специалист по энергетике офиса энергетики и окружающей среды ЮСАИД
Nina Kavetskaya Project Management Specialist Office of Energy and Environmental Initiatives USAID Tel. (3272) 507-612 Fax (3272) 507-636 E-mail: nkavetskaya@usaid.gov	Нина Кавецкая Координатор проектов офиса энергетики и окружающей среды ЮСАИД
John Wysham Economic Officer US Embassy Tel. (3272) 507-612 Fax (3272) 507-636	Джон Вайшэм Советник по экономическим вопросам Посольство США

Gulbarshyn Bazheeva Science Specialist US Embassy Tel. (3272) 507-612 Fax (3272) 507-636	Гульбаршин Бажеева Специалист по науке Посольство США
David Benedetti Director Global Training for Development Project Tel. (3272) 626-761 Fax (3272) 691-727 E-mail: aed-car@kaznet.kz	Дэвид Бенедетти Директор Региональной программы обучения ЮСАИД для Средней Азии
Saule Davletova Program Specialist Global Training for Development Project Tel. (3272) 626-761 Fax (3272) 691-727 E-mail: aed-car@kaznet.kz	Сауле Давлетова Специалист по программам Региональной программы обучения ЮСАИД для Средней Азии
Daene McKinney Team Leader Environmental Policies and Institutions for Central Asia (EPIC) Program Tel. (3272) 65-46-95 Fax (3272) 64-68-49 E-mail: Daene@aol.com	Дэйн МакКинни Руководитель Программы по природоохранной политике и усилению организационных структур управления ресурсами в Центральной Азии
Theresa Sabonis-Helf Environmental and Energy Policy Advisor Environmental Policies and Institutions for Central Asia (EPIC) Program Tel. (3272) 65-46-95 Fax (3272) 64-68-49 E-mail: theresa@hiid.alma-ata.su	Тереза Сабонис-Хелф Советник по энергетике и природоохранной политике Программы по природоохранной политике и усилению организационных структур управления ресурсами в Центральной Азии
Megan Falvey Program Administrator Environmental Policies and Institutions for Central Asia (EPIC) Program Tel. (3272) 65-46-95 Fax (3272) 64-68-49 E-mail: megan@epicf.almaty.kz	Мэган Фалви Администратор Программы по природоохранной политике и усилению организационных структур управления ресурсами в Центральной Азии
Alma Raisova Environmental and Energy Policy Specialist Environmental Policies and Institutions for Central Asia (EPIC) Program Tel. (3272) 65-46-95 Fax (3272) 64-68-49 E-mail: alma_epic@nursat.kz	Алма Раисова Специалист по энергетике и окружающей среде Программы по природоохранной политике и усилению организационных структур управления ресурсами в Центральной Азии
Aliya Sartbayeva Workshops and Training Specialist Environmental Policies and Institutions for Central Asia (EPIC) Program Tel. (3272) 65-46-95 Fax (3272) 64-68-49 E-mail: aliya_epic@nursat.kz	Алия Сартбаева Координатор семинаров Программы по природоохранной политике и усилению организационных структур управления ресурсами в Центральной Азии
Anna Polsha Program Specialist Environmental Policies and Institutions for Central Asia (EPIC) Program Tel. (3272) 65-46-95	Анна Польша Специалист Программы Программы по природоохранной политике и усилению организационных структур управления ресурсами в Центральной Азии

Modeling mtg 2/26

GDP - 3 scenarios - 1) 2030 strategy (optimistic)

2) middle projection (in-line w/ IMF)

3) pessimistic

↳ follow-up w/

IMF on projection ★

Is it public?

how can it be used?

forecasts - different starting points for 98

(Kant 15% lower: official, 90 = 10 98 = ~62-65

Kant 98 = 48

black mkt = ~10% (K.) Min of Economy up to 30%
of GDP

volume of money inpt to growth

decline bc of payment arrears

investment is now 6.5-7% of GDP

GDP structure - demographic forecast (from agency for statistics)

(living stds this year can't be worse off than last yr)

→ use to understand ag output/demand, then ^{ag} share of GDP

→ then calc other sectors

calc shares sequentially: ag, transport + const, industry

problem w/ Strat 2030 → pop assumption 25m, K has 21m

- no energy structure (but K has energy balance model)

use I-O model to est. GDP, use this w/ energy balance

to est energy ① to use in ENPEP

g re tech - have 2 sets of tech - old (existing) + new

each has a share that Δ s one time - use expert

judgment to est. rate of Δ in shares

Inventory - revised 90 + 94 done in 1 month
90-98 CO₂ trend as well
want EPA assistance

ENPEP - need new version of model (expect soon)
want TA for model as well

(from Arjona - ~~Gunter~~ Guenter Conzelmann
has worked w/ Kar before - they want him.)

work w/ Seeger
tie-in to
work plan

will
follow-up
with

Costs of Fed - can do some work

- focus set of no regrets measures, low-cost measures,
higher cost measures

- TA?

**AGENCY FOR INTERNATIONAL
DEVELOPMENT****EUROPE AND THE NEW INDEPENDENT STATES****OFFICE OF ENVIRONMENT, ENERGY AND URBAN DEVELOPMENT**

TO:	Joe Aldy	
OFFICE:	CEA	
VOICE:	395-1455	395-6870

FROM:	Fred Ghyment	
ENI/EEUD		
VOICE:	712-5631	FAX: 216-3409

Number of Pages: 4

Joe, enclosed is the draft agenda I mentioned in my voice mail. Also enclosed is a list of folks that will be invited. We have gone back to the mission and suggested adding some folks in the oil/gas industry and on the regulatory side. Be interested in your reaction.

Fred

PAK'I A -- Proposed DRAFT Agenda for Visit of US Expert Team on Climate Change Instruments.

Monday, February 22: Delegation arrives, informal discussions

Tuesday, February 23: Seminar, Day 1

Morning:

- Opening remarks by representatives of GOK and USG
- Overview presentations by GOK agencies on programs/perspectives concerning climate change

Afternoon:

- Overview presentations by US agencies on programs and perspectives concerning climate change
- Review of objectives for seminar, potential for continued cooperation.

Evening: Reception

Wednesday, February 24: Seminar, Day 2

Morning:

- Technical Theme #1: Measurement & Analysis of GHG Emissions
Growth Presentation regarding the status of Climate Change modeling, to be conducted by KazNIMOSK (O. Pilofosova, I. Eserkepova, S. Mizina). This presentation will cover the following:
 - 1) Use of ENPEP and other modeling instruments (review of what has been completed, with which instruments, what work is in progress)
 - 2) Current understanding of costs of abatement
 - 3) Weaknesses of analysis to date, and outline of needs for future work.

Afternoon:

- Technical Theme #2: Presentation of the availability of economic data and the status of macroeconomic modeling, to cover the following:
 - 1) Macroeconomic data available (presentation by those responsible for producing Economic Trends Quarterly - Kazakhstan series, by representative of Ministry of Finance)
 - 2) Macroeconomic scenarios used by the government of Kazakhstan (presentation from Ministry of Strategic Planning)
 - 3) Sectoral data and scenarios available (presentation by K. Barentaev, Kazakhstan Institute of Economic Research Under Ministry of Energy, Industry and Trade)
 - 4) A Western perspective on data availability and creation of macroeconomic scenarios. (presentation by US econometrics consultant)
 - 5) A WB perspective on macroeconomic scenarios (H. Schreiber or other WB specialist)
- Technical Theme #3: Understanding the Costs of Greenhouse Gas Emissions - Presentation by Ministry of Environment and discussion and exchange of views with US delegation

Thursday, February 25: Seminar, Day 3

Morning:

- Technical Theme #4: Improving Understanding of Climate Change and Benefits of GHG Emissions Reductions - Presentation by National Ecological Center (S. Yelkin) and discussion
- Technical Theme #5: Politics and Institutions for Response to Climate Change - Roundtable (Chaired by EPIC Program Specialist)

Afternoon:

- Conclusions: Roles and Responsibilities, Tentative Discussion of Areas for Kazakh-US Cooperation.

Evening: Depart for Capital City Astana (all or part of the delegation).

Friday, February 26: Astana Meetings

Morning:

Briefing for Ministers and top level officials: Review of technical discussions held in Almaty.

Afternoon: Individual meetings, as arranged.

Evening: Reception

Saturday, February 27: Return to Almaty and depart for U.S.

Option for Consideration: If the delegation is unable to travel to Almaty, the seminar will continue in Almaty until evening of the 25th, and end at that time. The first day's agenda will be changed to accommodate welcoming comments of top-level officials who can attend, but will otherwise be the same. The USAID team in Kazakhstan recommends the first option as it will provide a greater likelihood that there will be an opportunity to engage top level officials. The number of top officials willing/able to meet in Almaty will be very limited.

PART B -- Recommended Counterparts to be included in the Meetings with CEA-led delegation.

GOK's COP-4 Delegation:

1. Irina Eserkepova, Lead Researcher, KazNIMOSK
2. Bulat Esekin, Director, National Ecological Center for Sustainable Development
3. Minister Serikbek Daukeev, Minister; Ministry of Environment and Natural Resources
4. Deputy Asylzhan Akhmetov, Chair of Mazhilis Ecological Committee
5. Suinshlik Tiesov, Director of Electricity Dept, Ministry of Energy,

Industry and Trade

6. Erbulat Sembayev, First Secretary of First Department, Ministry of Foreign Affairs

Other Key Participants:

1. O. Pilofosova, S. Mizina (KazNIMOSK)
2. S. Yelkin, A. Baisekalova (National Ecological Center)
3. M. Mukhanov and Utembaev or designees (Agency of Strategic Planning)
4. K. Barentaev, N. Fedorova (Kazakhstan Institute of Economic Research Under Ministry of Energy, Industry and Trade)
5. H. Schreiber (WB Director of National Strategy Study for Kazakhstan)
6. S. Katyshev (KIGOK Climate Change advisor)
7. Ministry of Finance (from Economic Trends Quarterly division)
8. Ministry of Transport (possibly Denisenko)
9. Ministry of Agriculture (possibly Izbanov)
10. Kazenergoprom (possibly Popafanosopulo)

- -

To: Frederick Guymont@ENI.EEUD,Ira Birnbaum@ENI.EEUD
From: Barry Primm@OEEI@ALMATY
Cc: Ken McNamara@OEEI@ALMATY,Nina Kavetskaya@OEEI@ALMATY,Russel
Backus@OEEI@ALMATY,Talgat Seitkazin@OEEI@ALMATY,Theodore
Streit@OEEI@ALMATY

Bcc:

Subject: Summary update on GCC team itinerary in Kazakhstan

Attachment:

Date: 02/06/1999 9:39 AM

FYI.....advise visiting GCC team members to have their running shoes on as they will be making tracks shortly after they arrive in Almaty on Monday. No mercy...grin.... will be shown to anybody who nods off in meetings or late night receptions. Pls. read para. highlighted at end of e-mail below.

From: "Theresa" <theresa@hiid.alma-ata.su>, on 2/5/99 6:04 PM:
To: Ken McNamara@OEEI@ALMATY, Barry Primm@OEEI@ALMATY

Barry: Here's what we know at this point (the 5:00 pm Friday report):

- Monday - Delegation arrives. Morning meeting with Embassy.
Conference begins in afternoon.
Small evening reception at the Hotel.
- Tuesday - Technical seminar continues all day.
- Evening reception at Ted Streit's house.
- This reception will also include invited corporate
members, and the Ambassador will launch the
reception with brief remarks and a toast.
- Wed. - Technical seminar continues all day.
- No evening plans yet but if you have suggestions,
we'll listen (Bear in mind the 7:00 am flight on
Thursday).
- Thurs. - 1st Half the USG delegation and two or three Kazakhstani
representatives of the technical seminar, together
with John W. and Ken and me travel to Astana.
- Meet with Ministers, representatives of the Senate
and Mazhilis. Return on 8:30 pm flight.
- 2nd Half the USG delegation and a few representatives of
the technical seminar continue work in Almaty. They will:
1) hold a small press conference (if the head of
delegation approves);
2) meet with the Mission/Embassy and give an after
action report;
3) meet with the Academy of Sciences (as per DoS
suggestion);
4) meet with corporate representatives who are
interested in discussing GHG issues in more detail.
- Friday - Delegation departs. Those who wish to see the city
will be toured.

Note that all the above assumes a few things which we don't know yet as in:
1) we must get names in time to reserve tickets to Astana on appropriate
flights; 2) that the head of the delegation gives his consent to split the

delegation on Thursday (and perhaps permission for a press conference as well); and 3) the weather does not prevent the delegation landing on schedule (we have no safety net, since they want to begin immediately). Please remind the delegation to get their visas, and send us their names, passport numbers and titles ASAP.
Thanks. T

Theresa (theresa@hiid.alma-ata.su)

HIID

Fri, 05 Feb 99 17:29 -0600 GMT



United States Department of State

Bureau of Oceans and International
Environmental and Scientific Affairs

Washington, D.C. 20520

TELEFAX TRANSMISSION

TO: IWG LIST

NAME: _____ TEL: _____

FAX: _____

NUMBER OF PAGES, INCLUDING THIS PAGE: 7

FROM:

NAME: Jeff Miotke

TEL: (202) 647-4069

OFFICE OF GLOBAL CHANGE

FAX: (202) 647-0191

OES/EGC - RM. 4330

MESSAGE:

**United States Department of State****Bureau of Oceans and International
Environmental and Scientific Affairs****Washington, D.C. 20520**

February 8, 1999

TO: DISTRIBUTION

FROM: OES/EGC - Jeff Miotke *DB GJM*

SUBJECT: Technical Team Visit to Kazakhstan

As announced at the last IWG meeting, the government of Kazakhstan has proposed, and the U.S. Embassy in Almaty has endorsed, a visit by a technical team to Kazakhstan during the week of February 22 to discuss issues relevant to that country's taking a binding emissions target under the Kyoto Protocol. In order to prepare for this trip, there will be a meeting on **Tuesday, February 9 at 10 a.m. in Room 7835 (OES Conference Room), Main State**. Please contact Angela Barber-Wilson at 647-4069 for clearance into the building.

At this meeting, I would like to discuss our objectives for the technical team visit, review a notional agenda for the visit sent to us by USAID/Almaty (attached) as well as Kazakhstani comments on the CEA paper, and consider any other information needs we may have in advance of the trip.

We do not yet have a firm idea of the composition of the team. As of today, the following travelers have indicated their availability to travel: State - Jeff Miotke, Dan Balzer, Victoria Greenfield; CEA - Joe Aldy (pending travel funding); AID - Fred Guymont, Ira Birnbaum; DOE - Peter Karpoff; Country Studies - Chris Bordeaux (pending travel funding).

I urge everyone to check with your respective managements to ascertain whether your agency wishes to participate in the visit. In any event, we will need to have the team finalized ASAP, and in any event no later than the conclusion of Tuesday's meeting in order to generate a country clearance request and allow for visa and travel arrangements.

Therefore, *for all potential travelers*, please fax the following information to Dan Balzer at 647-0191:

- Name
- Agency
- Date and place of birth
- Passport type and number
- Passport issuance and expiry dates
- Security clearance

Attachments: Proposed visit agenda
Summary of initial Kazakhstani comments on CEA paper

Author: <ibirnbaum@usaid.gov> at INET
Date: 1/21/99 10:24 AM
Priority: Normal
TO: Daniel K Balzer at OESWPOB
CC: "Frederick Guymont" <fguymont@usaid.gov> at INET
CC: "Ko Barrett" <kbarrett@usaid.gov> at INET
Subject: fwd: GCC: Visit by USG Interagency Group

----- Message Contents -----

Dan: Here is input from our Kazakhstan mission. Based on their discussions with the Kazakhs, the dates for the emissions target-setting visit should be Feb. 21-27. The mission also proposed a meeting agenda and a list of institutions and individuals to meet with.

I will be traveling next week (Jan. 25-29). To follow up, please contact Fred Guymont at 712-5631. Thanks.

Ira

Original Text

From: Barry Primm@OEEI@ALMATY, on 01/20/1999 3:11 PM:
To: Alexandra Burke@ENI.EEUD@AIDW, Carol Pierstorff@ENI.EEUD@AIDW, Loren Schulze@ENI.EEUD@AIDW
Cc: Angela Crooks@ENI.EEUD@AIDW, Frederick Guymont@ENI.EEUD@AIDW, GLENN ANDERS@DIR@ALMATY, Gordon Weynand@G.ENV.EET@AIDW, Harriett Destler@PPS@ALMATY, Ira Birnbaum@ENI.EEUD@AIDW, Ko Barrett@G.ENV.EET@AIDW, Pamela Baldwin@ENI.EEUD@AIDW, Robert Ichord@ENI.EEUD@AIDW

Hello from the workers' paradise! This hurriedly conveys input prepared by our advisors so pls. forgive typos, mis-spellings, and poor grammar. Would greatly appreciate EEUD and Global feedback on the following.

FYI...Part A below represents a proposed meeting agenda along with the specific institutions we think the CEA led delegation should meet with. We are now discussing this with the Embassy and have already been contacting the GOK officials. We will know more tomorrow about the availability of these individuals to meet with the delegation. Part B is a specific list of GOK officials we recommend the delegation meet with.

We have been advised that the concerned USG agencies are only planning to send staffers as part the delegation. Pls. confirm. In our discussions with our counterpart we have tentative indications that the best time period would be Feb. 21 to the 27th and probably include a trip to Astana.

I have heard rumors of Wash. wanting to do this in 3-4 days...sigh....that is a really bad idea....so I advise forgetting it.

Part C presents the results of discussions between EPIC advisors and OEE (drafted by Ms. Sabonis-Helf) on which software program to use in modeling the economy and associated GHG emissions (most probably ENPEP). I hope the EEUD and Global Bureau perspective is the same as ours. We look forward to your feedback, comments, anything you care to share with us.....grin..... on the status of this activity in Washington.

PART A -- Proposed DRAFT Agenda for Visit of US Expert Team on Climate Change Instruments.

Monday, February 22: Delegation arrives, informal discussions

Tuesday, February 23: Seminar, Day 1

Morning:

- Opening remarks by representatives of GOK and USG
- Overview presentations by GOK agencies on programs/perspectives concerning climate change

Afternoon:

- Overview presentations by US agencies on programs and perspectives concerning climate change
- Review of objectives for seminar, potential for continued cooperation.

Evening: Reception

Wednesday, February 24: Seminar, Day 2

Morning:

- Technical Theme #1: Measurement & Analysis of GHG Emissions Growth Presentation regarding the status of Climate Change modeling, to be conducted by KazNIMOSK (O. Pilofosova, I. Eserkepova, S. Mizina).

This presentation will cover the following:

- 1) Use of ENPEP and other modeling instruments (review of what has been completed, with which instruments, what work is in progress)
- 2) Current understanding of costs of abatement
- 3) Weaknesses of analysis to date, and outline of needs for future work.

Afternoon:

- Technical Theme #2: Presentation of the availability of economic data and the status of macroeconomic modeling, to cover the following:

- 1) Macroeconomic data available (presentation by those responsible for producing Economic Trends Quarterly - Kazakhstan series, by representative of Ministry of Finance)
- 2) Macroeconomic scenarios used by the government of Kazakhstan (presentation from Ministry of Strategic Planning)
- 3) Sectoral data and scenarios available (presentation by K. Barentaev, Kazakhstan Institute of Economic Research Under Ministry of Energy, Industry and Trade)
- 4) A Western perspective on data availability and creation of macro-economic scenarios. (presentation by US econometrics consultant)
- 5) A WB perspective on macroeconomic scenarios (H. Schreiber or other WB specialist)

- Technical Theme #3: Understanding the Costs of Greenhouse Gas Emissions - Presentation by Ministry of Environment and discussion and exchange of views with US delegation

Thursday, February 25: Seminar, Day 3

Morning:

-- Technical Theme #4: Improving Understanding of Climate Change and Benefits of GHG Emissions Reductions - Presentation by National Ecological Center (S. Yelkin) and discussion

-- Technical Theme #5: Politics and Institutions for Response to Climate Change - Roundtable (Chaired by EPIC Program Specialist)

Afternoon:

-- Conclusions: Roles and Responsibilities, Tentative Discussion of Areas for Kazakh-US Cooperation.

Evening: Depart for Capital City Astana (all or part of the delegation).

Friday, February 26: Astana Meetings

Morning:

Briefing for Ministers and top level officials: Review of technical discussions held in Almaty.

Afternoon: Individual meetings, as arranged.

Evening: Reception

Saturday, February 27: Return to Almaty and depart for U.S.

Option for Consideration: If the delegation is unable to travel to Almaty, the seminar will continue in Almaty until evening of the 25th, and end at that time. The first day's agenda will be changed to accommodate welcoming comments of top-level officials who can attend, but will otherwise be the same. The USAID team in Kazakhstan recommends the first option as it will provide a greater likelihood that there will be an opportunity to engage top level officials. The number of top officials willing/able to meet in Almaty will be very limited.

PART B -- Recommended Counterparts to be included in the Meetings with CEA-led delegation.

GOK's COP-4 Delegation:

1. Irina Eserkepova, Lead Researcher, KazNIMOSK
2. Bulat Esekin, Director, National Ecological Center for Sustainable Development
3. Minister Serikbek Daukeev, Minister; Ministry of Environment and Natural Resources
4. Deputy Asylzhan Akhmetov, Chair of Mazhilis Ecological Committee
5. Suinshlik Tiesov, Director of Electricity Dept, Ministry of Energy, Industry and Trade
6. Erbulat Sembayev, First Secretary of First Department, Ministry of Foreign Affairs

Other Key Participants:

1. O. Pilofosova, S. Mizina (KazNIMOSK)
2. S. Yelkin, A. Baisekalova (National Ecological Center)

4. K. Barentaev, N. Fedorova (Kazakhstan Institute of Economic Research
Under Ministry of Energy, Industry and Trade)
5. H. Schreiber (WB Director of National Strategy Study for Kazakhstan)
6. S. Katyshev (KIGOK Climate Change advisor)
7. Ministry of Finance (from Economic Trends Quarterly division)
8. Ministry of Transport (possibly Denisenko)
9. Ministry of Agriculture (possibly Izbanov)
10. Kazenergoprom (possibly Popafanosopulo)

PART C -- OUR Perspective on the Modelling Issue.

Summary: To introduce a new GHG emissions model, and educate our counterparts about its use in the current calendar year would not serve the US's stated purpose of helping Kazakhstan to make a credible commitment at COP-5. Analytic resources should be dedicated instead to assisting with the macroeconomic projection problem and with further assistance in using the ENPEP model with which they are already familiar.

The Debate: There are three models used for projecting GHG emissions into the future: ENPEP, Marcel, and STAIRS. No consensus exists on which model is best, but (roughly) Marcel is considered very sophisticated but not user-friendly. STAIRS is designed for developing countries in which data quality is a problem. ENPEP was used by the US Country Studies Program, and therefore has been applied in a number of very different cases.

Kazakhstan Perspective: Our counterparts are familiar with ENPEP, and use it well. Their complaint (also reflected in the analysis of our experts) is that they have very poor macroeconomic data (and projections) to input into the model. In the absence of a credible macroeconomic projection for Kazakhstan, none of the three models can predict emissions with any level of accuracy. The only macroeconomic projection currently in use is the "Plan 2030," the GOK official 30 year plan for the future of Kazakhstan.

Out of respect for our counterparts and the GOK, we will need to continue to use the "Plan 2030" as our 'high' scenario. It will not be accepted as credible, however, by critics of Kazakhstan's efforts to join Annex B and take a binding commitment. The real need in modeling for the near term is to develop (or better, to assist in the development of) an alternate future scenario for the macroeconomy to 2012. Only if we have that can the GHG model(s) yield meaningful numbers.

Taking a commitment: Politically, there is a different issue. Annex B signatories have committed themselves to reducing GHG emissions to a percentage of 1990 emissions by 2012. The most ambitious signatories have committed to 92%. A few signatories have committed to 100% or over, but this option will not be available for Kazakhstan. Hence, in political terms, Kazakhstan's commitment is likely to fall between 92% (it would not be reasonable to insist that a re-developing country take a more ambitious commitment than the developed states) and 98%. Differences between the emissions models may be useful in future GOK planning, but for the purposes of selecting a credible commitment the range is already narrow, and the data quality issues are considerable. At this time, it would be better to progress with the model already in use, and focus limited resources on improving the macroeconomic inputs needed for any of these emissions models.

Author: <fguymont@usaid.gov> at INET
Date: 2/3/99 9:56 AM
Priority: Normal
TO: Daniel K Balzer at OESWPOB
CC: "Ira Birnbaum" <ibirnbaum@usaid.gov> at INET
Subject: ...no subject...

----- Message Contents -----

Dan, first some feedback the USAID mission got from the Kazakhs on the USG discussion paper on the technical issues involved in setting an emissions target and on the recent Umbrella group meeting. I have been assured that the Almaty meetings will be real working meetings although there seems to be some suspicion on the part of the Kazakhs that this is simply a meet/greet activity (since we will only be there for four days) just to make contacts rather than a serious technical assistance effort on the part of the USG. My response to the mission is that this isn't a one shot deal and that we will be working with the Kazakhs over the next year to help them to come up with the information they need (which will be identified in the Almaty meetings) to make their own informed decisions. This should be reenforced in almaty. Also some logistical issues. I hope we can schedule a meeting for very early next week to discuss this and any other issues.

a. counterparts indicated that the discussion paper fails to discuss the non - electricity energy sector. Since Kazakhstan has coal and oil and limited gas, it may make sense to shuffle the schedule a bit and make room for discussion of Kazakhstan's strategy for the development of the energy sector. This would include a brief review of the coal, oil and electricity strategies.

b.counterparts state that the memo appears to confuse annex 1 and annex B deliberately. Our counterparts would like clarification as to which is higher priority for the US, and which strategy the US recommends they take for the near term.

Another bit of feedback the mission got from the Umbrella Group meeting is that Kazakhstan may want to seek to join Annex 1 at COP 5, and wait until COP 6 to join Annex B, since the analysis needed for the latter is more sophisticated. We should be prepared to address the relative merits of an Annex 1 vs. annex B approach.

There are some logistical issues we need to deal with

-names of the delegation, positions and short bios

-folks should try to get Kazakh visas ASAP since there have been delays at the Kazakh Embassy.

-the USAID mission needs passport information to get the Astana tickets. (it is a lot easier to buy those tickets in Almaty than to try to include them on the international ticket.) Folks should come with cash or their checkbooks. The tickets are about \$250 round trip. I'll try to get the exact price.

-we will need travel itineraries, ETAs/ETDs and flight numbers

In Astana there are meetings being arranged with Minister Daukeev (Ministry of the Environment), and Minister Ablyazov (Ministry of Energy, Industry, and Trade), several deputy ministers, and corporate representatives for Thursday Feb. 25 with the Almaty meetings starting Monday mid day Feb. 22 through Wed the 24th.

Setting an Emissions Growth Target: Technical Issues

Targets for non-Annex I countries should help promote their sustainable development. To do so, such targets should accommodate emissions growth. However, such targets should also result in real abatement in emissions below levels that would otherwise occur during the commitment period -- that is, below the projected business as usual (BAU) emissions level.¹ This kind of target, often referred to as an emissions growth target, would provide for continued economic development but with a lower emissions growth rate.

Choosing a target may involve an assessment of factors such as economic output, the size and structure of the energy sector, and the cost and benefits of emission abatement. The differentiated targets for industrialized countries under the Kyoto Protocol, and for European Union members under their burden-sharing agreement, reflect variations in countries' national circumstances (including the costs, benefits, and availability of emissions abatement opportunities). These same factors will lead to differences in non-Annex I country targets.

To facilitate an understanding of the technical issues associated with establishing an emissions growth target, provided below is a discussion framing many of the important economic, technological, and environmental issues. The process of addressing questions on such issues as the projected business as usual emissions, the costs of abating greenhouse gas emissions, and the benefits of emissions abatement can help inform decision-making. In the United States, compiling this kind of information served to inform the dialogue both within our government and with interested companies, non-governmental organizations, and others. Likewise, this effort could inform your debate over the ratification of the Protocol and subsequent discussions regarding your emissions target and implementation.

The first section focuses on identifying the business as usual emissions path. The second section addresses the issue of abatement costs and the third section addresses the benefits of abatement. A final section identifies key issues to consider in designing policies to abate emissions. In evaluating these issues, it may be useful to identify specific tasks that would be considered necessary to better inform the decision-making process. To aid in setting priorities, these tasks could be placed in one of three categories: 1) existing analysis that specifically addresses this task; 2) relevant information and analysis that may not be immediately available, but that would not require much in terms of time and resources to complete this task; and 3) analysis that would require substantial time and resources to complete this task. Categorizing tasks could help in designing a work plan for the coming year as well as in identifying areas where further assistance

¹ Business as usual for these purposes can be defined as the projected greenhouse gas emissions over the 2008 to 2012 period absent any new policies to abate emissions. In most cases, analysts use a projection for 2010 as a representative annual average emissions for this period.

may be desired. These tasks would largely reflect and build on the extensive analysis the Government of Kazakhstan has already undertaken. This existing work provides a strong foundation for your effort to develop an emissions target by the Fifth Conference of the Parties.

Business as Usual Emissions Path

Identifying the business as usual greenhouse gas emissions path is a necessary first step in the analytical process. It serves as the basis for estimating the costs and benefits of emissions abatement, including the environmental gains. Identifying the major sources of emissions growth can also illustrate the opportunities that are available to tailor policies to slow the rate of emissions growth for these sources. Finally, it is important to gain a sense of the possible range of emissions estimates from specific sources or sectors in order to understand the sensitivity of the estimates to specific assumptions.

Developing the business as usual emissions path for greenhouse gases involves a comprehensive understanding of a country's economy. This understanding could reflect both the sense of the trends in the macroeconomy, such as aggregate economic output, structural change over time, etc., as well as sector- and industry-specific trends, such as changes in production practices that affect energy consumption and energy mix, etc. Several reports on climate change published by the Government of Kazakhstan illustrate that a substantial amount of work has already been completed on this issue. Efforts to refine and expand the business as usual projection for all sectors and sources would build on this existing foundation. In this context, we first discuss some of the key macroeconomic issues, and then we raise sector-specific issues.

Understanding economic growth, in aggregate and by sector, is important for assessing the potential growth in a country's emissions. Output projections for sectors that are the major sources of emissions are especially important. Projected output growth in these sectors should be consistent with the economy-wide output projection. Note, this does not imply that each sector's growth rate would be the same as the economy-wide growth rate, because these would vary as the structure of the economy changes with continued development. For example, the growth rate of the agricultural sector may begin to decline as the growth rates of industrial sectors increase. Eventually, the growth rates of industrial sectors may decline as the growth rates of service industries increase. Finally, at the macroeconomic level, economic output can also be used to project carbon dioxide emissions, reflecting a more general relationship between aggregate output and emissions.

The Kazakhstan National Communication reports that carbon dioxide emissions are projected to begin growing again after 2000 (p. 50). As the Communication notes, this emissions projection is based on factors such as projected GDP growth, energy use efficiency, and the demand for energy. To better understand this projection, it would be beneficial to know the assumptions made regarding these factors. In addition to the projection in the National Communication,

would it be useful to consider “high” and “low” growth estimates based on optimistic and pessimistic assumptions about these factors? Further, is there a consistent relationship between aggregate economic output and greenhouse gas emissions? For example, as Kazakhstan has progressed through its economic transition this decade, carbon dioxide emissions have fallen as economic output has fallen. Is the trend in carbon dioxide emissions growth relative to economic growth expected to be the same? Do certain macroeconomic variables, such as economic output, investment, etc., explain carbon dioxide emissions as well as other greenhouse gas emissions?

In addition to evaluating the macroeconomic aspect of the business as usual projection, the sectoral components are important to understand because information on these sectors can assist in developing and refining projections as well as highlight opportunities for emissions abatement. The key sectors to evaluate include electricity generation, transportation, industry, agriculture, and the buildings sectors. Identifying the key characteristics of these sectors (energy profiles, production technologies and practices, role in international trade, projected growth, etc.) facilitates the estimation of emissions. Further, recognizing potential growth in new sectors, for example, high-tech sectors, is important for projecting new sources of emissions, including the synthetic gases.

This sectoral level assessment can build on existing work on Kazakhstan’s emissions inventory. Some of the key issues to consider in evaluating the emissions inventory include: 1) the scope and detail at the sectoral level in the inventory; 2) the nature and detail of the activity data; and 3) the nature and detail of the emissions factor data. For each of the key sectors, there is a set of questions regarding their projected emissions that apply to all of them. What is the present and projected composition of each sector? What is the projected growth of each sector? What changes in practices and technologies are projected? How do existing and proposed policies affect these sectors and their emissions? Compiling the information developed from addressing these inventory issues and answering these questions can provide the basis for developing a comprehensive business as usual projection for the first commitment period.

The National Communication provides an assessment of the business as usual carbon dioxide emissions from the energy system through 2020. This serves as a very useful first step in evaluating projected emissions, however it would be beneficial to expand the focus of a BAU projection to include all greenhouse gases and all their sources. This effort would specifically require more attention on agricultural activities and how they relate both to carbon sequestration as well as methane and nitrous oxide emissions.

Costs of Abatement

Developing an understanding of the costs of abating emissions is helpful for the design of an appropriate growth target. To promote the effort to select an emissions target consistent with economic growth objectives, a country would benefit from knowledge of the costs and benefits

of abating emissions. Further, this information is necessary for evaluating the gains from participation in international emissions trading.

Assessing the costs of abatement includes identifying the technologies, processes, and fuel-switching options that can reduce emissions, the costs of switching to these climate-friendly options, and the policies necessary to stimulate their adoption. This involves the capacity to analyze how the economy responds to policies implemented to abate greenhouse gas emissions. Without an integrating tool such as an economy-wide model, it would be difficult to evaluate in a consistent manner the effects of abatement policies. Since so many sectors of the economy are intricately related to activities in other sectors, trying to assess the effects of policies on each sector independently without an economy-wide model could result in a misunderstanding of the potential effects of policies. An economy-wide model can reflect all of the feedbacks and relationships in an economy, both across end-use sectors as well as up and down the energy supply stream. Such a model also could be integrated with existing international models to evaluate the opportunities for participation in international trading.

Employing the analytic tools necessary to better inform decision-makers about the emissions abatement and potential costs of various policy options is a feasible effort over the next year. The first task on this issue is to evaluate the present analytic and modeling capacity within the Government of Kazakhstan. It would be beneficial to know which ministries have modeling or related analytic expertise and tools, and to assess their areas of strengths and weaknesses. For example, the energy ministry would be expected to have analytic tools well-suited for evaluating the electricity sector, while the agriculture ministry would be expected to have tools to address agricultural production. Further, it would be useful to assess the ENPEP model used in developing the mitigation scenario in the National Communication to determine if it is an adequate tool for evaluating the costs of potential efforts to abate emissions.

The results from the mitigation analysis in Box 2 of the National Communication (p. 56) illustrate opportunities to abate emissions by addressing the energy supply, primarily through fuel switching and improving existing power plant operating efficiency. It would be useful to expand analysis of abatement opportunities to include other options. First, since Kazakhstan has substantial natural gas reserves, it may be helpful to evaluate the economic and environmental effects of expanding the use of natural gas in electricity generation. Second, as the National Communication reports, Kazakhstan had the world's highest CO₂-to-GDP ratio in 1993 (p. 45). This implies that there may be many low-cost options to improve energy efficiency by end-users both in industrial and in residential settings, perhaps through addressing the "weak energy conservation ethic" associated with subsidized energy prices discussed in Pilifosova et al.²

² Pilifosova, Olga, Dmitry Danchuk, Tleusen Temertekov, and Sergey Izdebsky. 1997. Mitigation Technologies and Measures in the Energy Sector of Kazakhstan. *Applied Energy* 56(3/4): 341-350.

Third, with transmission and distribution losses estimated at 15% of total power produced in 1996 by the U.S. Energy Information Administration,³ efforts to reduce energy losses from electricity transmission and distribution may also provide low-cost opportunities to abate emissions. Indeed, given some of the existing inefficiencies in energy consumption described in the National Communication, addressing these inefficiencies may generate both economic benefits and lower greenhouse gas emissions.

Many different types of tools are helpful. A model is a tool to represent economic behavior in a simplified framework to inform decision makers. As such, it could be as simple as several equations that relate carbon emissions to energy use to economic growth based on a quantitative assessment of historical relationships. It could also be a more detailed representation of economic behavior in an economy that would include many more equations describing economic relationships. In the United States, there is no single model that can evaluate all aspects of the climate change issue. Thus, it is helpful to draw from several different tools, some simple and some more complicated, to evaluate opportunities to abate emissions.

Benefits of Abatement

In addition to the costs of abatement, it is important to evaluate the benefits of abatement when considering an emissions target. First, understanding the benefits to society of abating emissions is just as important as understanding the costs when evaluating a country's capacity to abate emissions and maintain economic development. Second, understanding what the benefits of emissions abatement could be, and how these benefits might vary with different approaches to abate emissions, would likely influence decisions about policies to promote emissions abatement.

By reducing emissions of greenhouse gases, the climate benefits from lower global emissions. However, it is quite difficult to assess the long-term climate benefits associated with emissions reductions undertaken by one country. In addition to the climate benefits, actions to reduce net greenhouse gas emissions can generate ancillary benefits, such as improved local air quality.

A growing body of literature has examined the relationship between public health benefits and the abatement of carbon dioxide emissions. In addition to carbon dioxide, the combustion of fossil fuels results in the emissions of numerous local air pollutants, including sulfur dioxide, particulate matter, carbon monoxide, nitrogen oxides, and volatile organic compounds. Emissions of these pollutants, however, do vary by fuel type. Significant anthropogenic emissions of these local air pollutants can result in high pollutant concentrations causing serious morbidity and mortality effects. Efforts to abate carbon dioxide emissions would likely result in

³ U.S. Energy Information Administration. 1997. Kazakhstan Country Brief. December. Internet: <http://www.eia.doe.gov/emeu/cabs/kazak.html>.

both a change in the fossil fuel mix as well as a reduction in total fossil fuel combustion. This change in both the composition and magnitude of fossil fuel combustion would lower the emissions of local air pollutants from what they would have been otherwise. Analysis for the United States indicates that these local air quality benefits from carbon dioxide abatement could be significant.

To evaluate the public health benefits of efforts to abate greenhouse gas emissions involves an identification of the change in emissions of local air pollutants. For example, policies that abate carbon dioxide between 2008 and 2012 could be evaluated to determine the abatement of local air pollutants from what they would have been otherwise during this period. The existing Kazakhstan mitigation analysis includes estimated changes in emissions of SO₂ and particulates under the six mitigation scenarios.⁴ This change in emissions could then be used to project the improvement in air quality and the subsequent benefits in terms of reduced morbidity and mortality.

Policy Mechanisms

The Kyoto Protocol provides countries full discretion to implement their own policies and measures to comply with their targets. It is important to assess which policies and measures may be most appropriate given national circumstances. Possible policies include a domestic emissions trading program, a carbon tax on energy, efficiency standards, tax incentives, removal of subsidies, investment in R&D, etc. Some policies could stimulate emissions abatement more efficiently than others. Assessing the cost-effectiveness as well as the ancillary benefits of these policies involves addressing the questions posed above on these issues to specific policies under consideration. In particular, answers to these questions will provide inputs to a comprehensive assessment. Non-Annex I countries may find it informative to review the effectiveness of various policies implemented in Annex I countries and assess the applicability of these policies to their own circumstances.

⁴ Pilifosova, Olga, Dmitry Danchuk, Tleusen Temertekov, Svetlana Mizina, and Irina Eserkepova. 1997. Mitigation Assessment for Kazakhstan. In *Global Climate Change Mitigation Assessment: Results for 14 Transitioning and Developing Countries*. U.S. Country Studies Program. Pp. 97-108.



United States Department of State

Bureau of Oceans and International
Environmental and Scientific Affairs

Washington, D.C. 20520

2/17/99

TELEFAX TRANSMISSION

TO:

NAME: Joe Aldy, Fred Guymont, TEL: _____

Peter Karpoff, Stephanie Benkoviz, FAX: _____

Chris Bordeaux

NUMBER OF PAGES, INCLUDING THIS PAGE: 7

FROM:

NAME: Dan Balzer

TEL: (202) 647-4069

OFFICE OF GLOBAL CHANGE

FAX: (202) 647-0191

OES/EGC - RM. 4330

MESSAGE:

FYI - here is some stuff on what IBRD is doing in
Kazakhstan (there was some discussion last week on coordinating
our efforts w/ theirs)

Ministry of Transport, Communications, and Water Management Development Department, H-1077 Budapest, Dob u 75-81, Hungary, Tel: (36-1) 322-0330 ext. 541, Fax: (36-1) 351-7527

Kazakhstan

Population, Health and Nutrition

Health Restructuring: At the oblast level, the project will support (a) primary health care; (b) facility reorganization and rationalization; and (c) financial and management strengthening. At the national level, the project will support health promotion and health policy evaluation. Appraisal is completed. Environmental Assessment Category C. PID: KZPE46499.

US\$ 33.0 (IBRD). Consulting services will be required. Ministry of Education, Culture and Health, 63 Abylai Khan Ave., Rm. 27-29, Almaty, Kazakhstan, Tel: (7-3272) 33-48-31, Fax/Tel: (7-3272) 33-16-97, Contact: Ms. Gulnara Nokina, Head, Head, Project Coordination Unit

Kazakhstan

Public Sector Management

(R) Pension Reform Implementation: This loan will provide the institutional support for the pension reform program. *Appraisal mission is in the field.* Environmental Assessment Category C.

US\$ 25.0 (IBRD). Consulting services will be required. Ministry of Labor and Social Protection, 36A Zheltoksan St., Astana, 473000 Kazakhstan, Tel/Fax: (7-3172) 263-327, Contact: Minister Natalya Artemovna Korzhova

Kazakhstan

Public Sector Management

Legal Reform: The project will provide technical assistance to the government for modernizing its legal framework. Project components include legal drafting, legal information, legal education and public awareness and judicial strengthening. Project preparation is under way. A PPF advance of US\$ 500,000 and a PHRD grant of US\$ 415,000 have been approved. Environmental Assessment Category C. PID: KZPA46046.

US\$ 20.0 (IBRD). Consultants will be required. Project Preparation and Implementation Unit (PPIU), Ministry of Justice, 45 Pobeda St., Astana, Kazakhstan, Tel: (7-3172) 320433, 391213, Fax: (7-3272) 324464, Contact: Mr. Andrei Dyomin, Director (PPIU)

Kazakhstan

Transport

(R) Road Transport Restructuring: The project will rehabilitate and maintain key parts of the country's road infrastructure, help restructure the road construction industry and implement key improvements in sector policies and institutions. *Negotiations were tentatively scheduled for early Oc-*

tober 1998. Environmental Assessment Category B. PID: KZPA8499.

US\$ 86.0 (IBRD). Consulting services to be determined. Department of Automobile Roads, Ministry of Transport and Communications, 86 Gogol St., Almaty 480091, Kazakhstan, Tel: (7-3272) 324-769, 322-679, 323-661, Fax: (7-3272) 324-449, 322-679, Contact: Mr. O. Dzevitsky, PPIU Director; Department of Automobile Roads Transport, Ministry of Transport and Communications, 49, Abylai Khan St., Astana, 473000 Kazakhstan, Tel: (7-3172) 320-408, 327-216, Fax: (7-3272) 321-696, 327-948, Contact: Mr. A. Denisenko, Director

Kazakhstan

Water Supply/Sanitation

(R) Atyrau Municipal Rehabilitation: The objective of the project is to encourage economic growth in Atyrau by improving the water supply, sewage disposal and drainage system with possible reuse of treated effluent on farm land and in oil production. *Project preparation is under way.* Environmental Assessment Category to be determined. US\$ 30.0 (IBRD). Consulting services to be determined. State Committee for Water Resources, Ministry of Agriculture, Almaty, Kazakhstan, Tel: (7-3272) 623-310, Fax: (7-3272) 623-983; State Committee for Water Resources, 28A Mazhayevsky St., Astana, Kazakhstan, Tel/Fax: (7-3172) 241-428, Contact: Mr. Serikbay Smailov, Director; Atyrau Development Corporation, 45 Aiteke bi St., Atyrau, Kazakhstan, Tel: (7-3122) 254-058, Fax: (7-3122) 254-056, Contact: Mr. Gabit Mynbaev, Director

Kazakhstan

Water Supply/Sanitation

Kyzyl Orda Water and Sanitation: The project includes four components (a) water supply; (b) sanitation; (c) hygiene education and public awareness; and (d) capacity building. Project preparation is under way. Cofinancing of US\$ 15.0 million by KfW is proposed. Environmental Assessment Category B.

US\$ 17.0 (IBRD). Consultants have been selected and are being financed by the Kuwait Fund and the Arab Economic Development Bank.

State Committee for Water Resources, Ministry of Agriculture, Almaty, Kazakhstan, Tel: (7-3272) 622-310, Fax: (7-3272) 623-983; State Committee for Water Resources, 28A Mazhayevsky St., Astana, Kazakhstan, Tel/Fax: (7-3172) 241-428, Contact: Mr. Serikbay Smailov, Director

Kazakhstan

Water Supply/Sanitation

Syr Darya Control and Northern Aral Sea: The project will allow more water to be passed down to the delta and the Northern Aral sea to benefit the environment, agriculture, livestock and fisheries. Project preparation is under way.

Environmental Assessment Category C. PID: KZPA46045. US\$ 50.0 (IBRD). Consultants will be required. State Committee for Water Resources, Ministry of Agriculture, Almaty, Kazakhstan, Tel: (7-3272) 622-310, Fax: (7-3272) 623-983; State Committee for Water Resources, 28A Mazhayevsky St., Astana, Kazakhstan, Tel/Fax: (7-3172) 241-428, Contact: Mr. Serikbay Smailov, Director

Kyrgyzstan

Structural Adjustment

(R) Social Sector Adjustment: The operation will support (a) the fiscal sustainability and institutional strengthening of the pension fund; (b) improved labor market flexibility; and (c) improved targeting, monitoring and evaluation of social assistance. Project preparation is under way. Environmental Assessment Category C.

US\$ 35.0 (IDA). Consulting services to be determined. Ministry of Finance, 58 Skindik St., Bishkek, Kyrgyz Republic, Tel: (7-3312) 267-039, Fax: (7-3312) 227-404, Contact: Ms. T. Kalimbetova, Director

Latvia

Agriculture

Rural Development (Ln. 4380-LV): The project will assist the government in (a) developing a sustainable rural finance system; and (b) fostering economic growth and generating employment in rural areas. Approved by the Executive Directors on 30 July 1998. Environmental Assessment Category B. PID: LVPA44804.

US\$ 10.5 (IBRD). Short-term consultants will be required and financed through a PHRD grant. Ministry of Agriculture, Republikas Laukums 2, LV 1841 Riga, Latvia, Tel: (371-2) 783-0276, Fax: (371-2) 783-0275

Latvia

Education/Training

(R) Education Infrastructure: The aim of the project is to reduce operating costs of schools by (a) consolidating small schools where feasible; (b) introducing multigrade teaching in small schools that cannot be consolidated; (c) supporting the implementation of selective education quality reforms; and (d) improving space utilization and energy efficiency in project schools. *Appraisal mission was tentatively scheduled for October 1998.* Environmental Assessment Category C. US\$ 30.0 (IBRD). Consulting services to be determined. Ministry of Education and Science, 2 Valnu St. LV 1098, Riga, Latvia, Tel/Fax: (371-7) 222-415, Contact: Gatis Kristaps

Latvia

Population, Health and Nutrition

Health: The adaptable program loan will include two phases. Phase one will support (a) strengthening of the institutional capacity of health financing institutions; (b) de-

velopment of health sector investment policy and a hospital restructuring program; (c) support to primary health care and public health reform; and (d) health reform communications strategy. Phase two of the loan will support the implementation of the secondary care restructuring program. Project preparation is under way. Environmental Assessment Category C.

US\$ 30.0 (IBRD). Consulting services to be determined. Ministry of Welfare, 28 Skolas St., LV 1331 Riga, Latvia, Tel: (371-7) 021-597, Fax: (371-2) 276-445, Contact: Laila Ruskule

Latvia

Power

Riga/Daugavpils District Heating Rehabilitation: The project would (a) support the rehabilitation of the district heating systems in Riga and Daugavpils to improve reliability and service levels and (b) support the development of heating companies. Project preparation is under way. Environmental Assessment Category B.

US\$ 30.0 (IBRD). Consultants have been selected for project preparation.

Rigas Silums, CESU Iela 3, Riga, Latvia 1012, Tel: (371-7) 17300, Fax: (371-7) 17363, Contact: Mr. Zigurs; Daugavpils Silumtikli, A. Pumpura Iela 97, Daugavpils, Latvia 5404, Tel: (371-7) 33190, Fax: (371-7) 37902, Contact: Mr. Valdis Plisko

Latvia

Public Sector Management

State Revenue Service Modernization: The loan will assist the government in (a) creating a more effective, efficient and sustainable revenue service; (b) strengthening the management and administrative capabilities of the State Revenue Services; (c) improving taxpayer compliance; (d) improving information systems; and (e) redesigning major business processes. Project preparation is under way. Environmental Assessment Category C.

US\$ 5.0 (IBRD). Consulting services to be determined. State Revenue Service, Ministry of Finance, 15 Smilšu St., Riga, LV 1162, Latvia, Tel: (371-7) 229-663, Fax: (371-7) 820-010, Contact: Mr. Andris Anspoks

Lithuania

Population, Health and Nutrition

Health: The project will include health care financing, primary health care and hospital restructuring. Project preparation is under way. Environmental Assessment Category C.

US\$ 25.0 (IBRD). Consultants will be required. Ministry of Health, Gedimino Dr. 27, 2682 Vilnius, Lithuania, Tel: (370-2) 620-150, Fax: (370-2) 224-601, Contact: Ms. Danute Kucienskiene

ECA.31

IBRD Projects in Implementation

Component. Two project design agreements have been signed between the MOE and Szeged and Debrecen Universities to initiate civil works design competitions. No disbursements have been made.

Kazakhstan**Institutional Building/Technical Assistance (L 3642)**

Loan Amount: US\$38 million

Signing Date: October 15, 1993

Effectiveness Date: December 18, 1993

Closing Date: June 30, 1999

Impl. Agencies: Ministries of Finance (MOF), Industry, Trade and Energy (MOITE), Labor (MOL), Health (MOH), Social Protection (MSP), Geology and Mineral Resources Safety (MOG), Justice (MOJ), and Ecology and Bioresources (MEBO), Agency for Strategic Planning and Reform (ASPR), National Bank of the Republic of Kazakhstan (NBRK), State Committee for State Property (SPC), State Committee for Statistics (SCS), Antimonopoly Committee (AMC), National Agency for Foreign Investments (NAFI), Project Implementation Unit (PIU)

Status: Equipment and facilities necessary for project implementation were acquired in late 1993, procurement and finance/disbursement advisers have been at work since October and June 1994, respectively, to assist in procuring the estimated 68 goods and consultant packages for 17 ministries and institutions under this project. Consultant work on bank diagnostic studies and design of case-by-case privatization, as well as procurement of computers for the payment system, the MOH, MOJ and the AMC are completed. Consultants' work on legal drafting, bank legislation and supervision, agricultural privatization, health reform, restructuring/liquidation of large loss-making enterprises, and privatizing agroindustries is complete. The project has undergone some restructuring in 1998 and the remaining funds are now partly used to assist on budget reform, external debt management, and pension reform. The project has been extended until June 30, 1999. As of June 30, 1998, US\$8.5 remained undisbursed.

Kazakhstan**Urban Transport (L 3725)**

Loan Amount: US\$40 million

Signing Date: June 8, 1994

Effectiveness Date: February 6, 1995

Closing Date: September 30, 1998

Impl. Agencies: Ministry of Transport, Ministry of Finance and the Local Governments and the Public Transport Companies of Almaty, Karaganda, Shymkent and Astana

Status: After initial delays due to the Borrower's lack of experience with procurement, progress in the implementation of the Project's two main components has been rapid and they are by now close to completion: (i) 289 new heavy duty urban buses have been procured and have greatly increased public transport capacity in the Project cities; and (ii) consultancy services have helped design and implement some major changes in urban transport policies including cost recovery, corporatization of the State-owned passenger transport companies, and establishment of a competitive regime that puts State-owned and private companies on an equal footing. Progress in the rehabilitation of existing buses and trolley buses has on the contrary been below expectation with only some bus rehabilitation being achieved. A serious problem, now being tackled, is that the maintenance of the Bank-financed buses is less than adequate in Almaty. About 97.5% of the loan is now disbursed. The closing date has been extended to September 30, 1998. As of June 30, 1998, US\$1.03 million remained undisbursed.

Kazakhstan**Petroleum Technical Assistance (L 3744)**

Loan Amount: US\$15.7 million

Signing Date: December 6, 1994

Effectiveness Date: September 8, 1995

Closing Date: December 31, 1998

Impl. Agency: Kazakhoil

Status: The project is in its final stage of implementation. Kazakhoil is currently preparing a proposal for the utilization of the remaining funds. An agreement about the use of these funds has been reached during the supervision of the project in October 1997 when Kazakhoil proposed financial and structural improvement of Kazakhoil, development of offshore drilling operations of the Caspian shelf, petroleum industry training and procurement of office equipment for regional training centers as targets for the remaining funds. As of June 30, 1998, approximately US\$5.3 million remained undisbursed.

Kazakhstan**Financial and Enterprises Development (L 3867)**

Loan Amount: US\$62 million

Signing Date: July 31, 1995

Effectiveness Date: October 27, 1995

ECA.32

Closing Date: September 30, 2001

Impl. Agencies: National Bank, Ministry of Finance, Ministry of Economy, State Committee for State Property Management and Committee for the Utilization of Foreign Capital

Status: Project implementation has been slow and uneven. The training program for 254 enterprise managers has been successfully implemented, and the Rehabilitation Bank (RB) and Restructuring Advisory Unit (RAU) isolated 25 enterprises for restructuring. Adequate capacity has also been built in the Ministry of Finance and the National Bank for project implementation, procurement and disbursements. However, the bank twinning program, the expansion of the payment system infrastructure, and case-by-case privatization of very large enterprises progressed less expeditiously. Twinning contracts are now being signed for HalykBank, NeftBank, and TsesneBank, three of the four banks recently accredited by the central bank, and ICB bids related to the payment system are being evaluated. Meanwhile, earlier than expected privatization/liquidation of many enterprises, bank mergers/failures, and the unanticipated contribution of other donors have revealed that several project components were over-dimensioned in this Bank-financed project, or are no longer needed. The Government and Bank staff have jointly restructured the project to use approximately \$30 million in savings (realized from a reduction in the scope of the privatization, payment system and commercial banking components) to support modernization of the tax administration system, implementation of a pension reform program, and technical assistance to the National Commission on Securities, the agency responsible for regulatory oversight of the emerging stock market. Board approval of the amendment, on a no-objection basis, is expected in early September 1998. To allow time to complete project implementation, the Closing Date is simultaneously being extended to September 30, 2001. As of June 30, 1998, US\$56.6 million remained undisbursed.

Kazakhstan

Social Protection (L 3896)

Loan Amount: US\$41.1 million

Signing Date: June 12, 1995

Effectiveness Date: August 31, 1995

Closing Date: June 30, 2002

Impl. Agencies: Ministry of Labor, Oblasts Governments of South Kazakhstan and Pavlodar Oblasts, City Governments of Shymkent, Kentau,

Lenger, Pavlodar, and Aksu, Project Coordination Unit (MOF)

Status: The Project seeks to assist the Government to: (i) develop the capacity of the Employment Service to manage the increase in the number of registered unemployed and attendant benefit claims following restructuring and privatization of enterprises; and (ii) ensure continued delivery of essential social services by promoting orderly divestiture of social assets from enterprises to local governments, as well as the efficient management by local government of a unified system of social services. Overall, the project continues to make considerable progress toward achieving its main objectives. In terms of the Social Sector Component, the opportunity the project offered for enterprises to divest kindergartens and transfer them to municipal control has been utilized effectively. This has resulted in protecting access to pre-school education with coverage rates above the national average in each of the project cities. Rationalization efforts in the kindergarten sector have been successful. A great number of facilities have been rehabilitated under the project and, as a result, quality of services has improved throughout the kindergarten sector. In terms of the Employment Service Component, the development objectives are partly being met. Considerable progress has been made in training of staff to improve the overall management of the employment service, model employment offices have been established and are operating with improved operational procedures, which have significantly reduced the time to register unemployed and calculate benefits. As a result, there has been an overall improvement in service delivery to clients; however, there is less progress than anticipated in the upgrading of labor market information and statistics systems as well as with the enactment of the Employment Law. The Loan is disbursing ahead of schedule. As of June 30, 1998, US\$27.2 million remained undisbursed. In addition, US\$3.8 million has been committed for already signed contracts.

Kazakhstan

Irrigation and Drainage Improvement (L 4041)

Loan Amount: US\$80 million

Signing Date: June 25, 1996

Effectiveness Date: October 21, 1996

Closing Date: December 31, 2003

Impl. Agencies: Ministry of Agriculture, Ministry of Ecology and Bioresources

Status: The project's main objectives are to: (i) promote sustainable agricultural production on about

ECA.33

25 irrigated sub-projects in ten oblasts (mostly on recently privatized state farms) through irrigation and drainage rehabilitation, improved water management, and better operation and maintenance; (ii) introduce improved agricultural practices both on sub-project farms as well as other privatized farms through farmers training, demonstration plots, and farmers' information services; and (iii) strengthen irrigation and environmental agencies. Construction of the first sub-project started in January 1998. Bidding documents for four sub-projects are under preparation, as well as feasibility studies for five sub-projects. Participatory farmers' training is ongoing and a Farmers' Information Services Desk has been established and is operational. An Environmental Unit has been established in the Ministry of Agriculture. As of June 30 1998, US\$71.9 million remained undisbursed.

Kazakhstan**Uzen Oil Field Rehabilitation (L 4061)**

Loan Amount: US\$109 million

Signing Date: July 18, 1996

Effectiveness Date: October 16, 1996

Closing Date: December 31, 2000

Impl. Agency: Uzenmunaigas

Status: Contracts for well workovers, such as tubing, sucker rods, sucker rod pumps and chemicals, as well as the consultancy contract for environmental services have been signed. In January 1998, the Government decided to suspend the further implementation of the project, in view of the fact that a strategic investor – the Chinese National Petroleum Corporation – had been selected and a General Agreement about a joint venture had been concluded. Subsequently, the Government informed the Bank that it would like to restructure the loan and proposed Kazakhoil, the national oil company, as the Borrower. Discussions about the proposed restructuring of the loan for this project are currently underway. As of June 30, 1998, US\$107.2 million remained undisbursed.

Kazakhstan**Treasury Modernization (L 4077)**

Loan Amount: US\$15.80 million

Signing Date: August 22, 1996

Effectiveness Date: December 18, 1996

Closing Date: December 31, 2000

Implementing Agency: Treasury Department of the Ministry of Finance

Status: The project provides assistance to the Government to set up a Treasury and associated

systems and procedures in accordance with international best practices. This will enable the Government to compile comprehensive, reliable and timely information regarding government finances. Some of the basic policy objectives of the project have been achieved with the establishment of the Treasury, the introduction of a Government Finance Statistics-based budget classification system and a conforming chart of account, and centralization of republican budget payments and receipts in a single treasury account. An interim computer system has also been set up to assist in treasury business processes. The introduction of a full function treasury system has, however, encountered delays. Treasury has still not completed the evaluation of the responses to an ICB for the hardware and software for the full function system. As of June 30, 1998, US\$13.8 million remained undisbursed.

Kazakhstan**Pilot Water Supply (L 4129)**

Loan Amount: US\$ 7.0 million

Signing Date: January 24, 1997

Effectiveness Date: September 9, 1997

Closing Date: December 31, 2001

Impl. Agency: State Committee for Water Resources

Status: Project implementation is on schedule. The Project Implementation Unit is established and the selection of the Consultant has commenced. As of June 30, 1998, US\$6.8 million remained undisbursed.

Kazakhstan**Pilot Real Estate Registration (L 4146)**

Loan Amount: US\$10.0 million

Signing Date: April 3, 1997

Effectiveness Date: August 11, 1997

Closing Date: June 30, 1999

Impl. Agency: Ministry of Justice

Status: The Project is assisting the Government to put in place a land and real estate registration system in accordance with the Kazakhstan Registration Law of December 1995. The Project is being implemented in Almaty and Akmola oblasts and Almaty City. Registration offices are now open and functioning in all project rayons and cities. Initial training of registry staff has been completed, and a follow-up round of training and office operation assessment is to be undertaken this fall. Delays have been encountered in implementing the land cadastre component, due to inadequate cooperation from the State Land Committee. The Project has also encountered some problems associated with the

ECA.34

timely provision of planned counterpart financing. The major round of ICB procurements is now drawing to a close, and implementation of the computerized registration systems at the rayon level is anticipated in the winter and spring of 1998/99. The consultant team has been in-country since the beginning of 1997 and has played an important role in project implementation. As of June 30, 1998 US\$8.6 remained undisbursed.

Kazakhstan**Public Sector Resource Management Adjustment (L 4217)**

Loan Amount: US\$230 million

Signing Date: September 4, 1997

Effectiveness Date: November 24, 1997

Closing Date: December 31, 1999

Implementing Agency: Ministry of Finance

Status: The loan is supporting an ambitious and wide ranging program of institutional and policy reforms. The primary objectives are to improve the effectiveness of resource mobilization by the government and the efficiency with which government resources are used. A secondary objective is to support a set of policies concerning housing and related utilities which should largely eliminate the heavy burden these activities have, in the past, placed upon government budgets. The government has taken substantive steps to strengthen public sector management as prior actions. This includes: (i) adoption of the law on budget systems; (ii) government resolutions on steps to be taken in preparation of the public investment program; (iii) program of administrative reforms and appointing a high level commission to oversee the process. There have been delays in the implementation of the reform program envisaged for second tranche release. The main reasons for these delays are the move of the government to Astana and the reorganization of the government. As of June 30, 1998, US\$150 million remained undisbursed.

Kazakhstan**Agricultural Post Privatization Assistance (L 4331)**

Loan Amount: US\$15 million

Signing Date: June 23, 1998

Effectiveness Date: October 23, 1998

Closing Date: January 31, 2002

Impl. Agencies: Ministry of Agriculture, Ministry of Finance

Status: This Loan was only recently signed. The conditions for effectiveness are expected to be met within the next two months.

Kazakhstan**Pension Reform Adjustment (L 4359)**

Loan Amount: US\$300 million

Signing Date: June 25, 1998

Effectiveness Date: June 29, 1998

Closing Date: June 29, 2000

Impl. Agencies: Ministry of Finance, Ministry of Labor and Social Protection

Status: The Project is to assist the Borrower by supporting the Government's efforts to finance the transition to a fully funded pension system by financing part of the estimated 1.7 percent of GDP fiscal deficit brought about by pension reform. The move to a funded system would continue the transition to a market economy by encouraging savings, creating an attitude of self-reliance among the population, reducing the public sector, and deepening capital markets. For the loan, specific measures have been outlined to ensure that the reform takes place within the context of a sustainable fiscal policy, with adequate administration of revenue collection and payment, with appropriate regulatory control and with consideration for the adequacy and equity of the pensions delivered to the population. The first tranche of US\$100 million was released on June 29, 1998 which leaves, as of June 30, 1998, an undisbursed balance of US\$200 million.

Kyrgyz Republic**Public Sector Resource Management Adjustment (L N0160 [Interim number])**

Loan Amount: US\$44 million

Signing Date: May 6, 1997

Effectiveness Date: June 17, 1997

Closing Date: August 31, 1998

Impl. Agency: Ministry of Finance

Status: The credit supports the Government's efforts to reform public sector management mainly by: improving fiscal management i.e., budget planning, execution and audit system; and (ii) restructuring the fiscal relationship between the central and local government levels. The reform program attempted to put systems and structures in place to rationalize expenditure and facilitate the implementation and monitoring of expenditure programs. A number of key specific actions have been completed prior to ITF Committee presentation. These included: (i) the

**Технический семинар по вопросам выбросов парниковых газов в Казахстане
Алматы, Санаторий «Алатау», 22-24 февраля 1999 г.**

Понедельник, 22 февраля

Приезд и размещение Американской и Казахстанской делегаций

Вечер:

19:00-22:00 Торжественный прием в санатории «Алатау»

Вторник, 23 февраля, первый день семинара

9:00 - 10:30 Приветственные речи представителей от правительств Казахстана и США

Председатели: Д. Моитке, Б. Есекин

10:30 Кофе-брейк

11:00-13:00 **Техническое заседание №1: Оценка и анализ временного хода выбросов парниковых газов.**

Председатель: И. Бернбаум

1) Состояние исследований по оценке и прогнозированию выбросов парниковых газов в Казахстане, проведенных в КазНИИМОСК

Докладчик: Ольга Пилифосова, руководитель лаборатории по изучению изменения климата

2) Результаты инвентаризации парниковых газов, проведенной Агентством США по охране окружающей среды

Докладчик: Стефани Бенковик, Агентство по охране окружающей среды

13:00 - 14:00 - Обед

14:00 - 15:00 **Техническое заседание №2: Стратегия развития энергетического сектора Казахстана**

Председатель: А. Голуб

1) Презентация национальной стратегии по энергетике в Казахстане

Докладчик: С. Катышев, Начальник отдела по стратегическому планированию, KEGOG.

2) Выброс парниковых газов энергетическим сектором в Казахстане

Докладчик: К. Сулейменов, Начальник отдела научно-технического прогресса и экологии, Министерство энергетики, индустрии и торговли

15:00 Кофе-брейк

15:30-17:30 **Техническое заседание №3: Наличие экономических данных и состояние макроэкономического моделирования в Казахстане**

Председатель: А. Голуб

Выступление включает рассмотрение следующих вопросов:

1) Макроэкономические сценарии, использованные правительством Казахстана

Докладчик: С. Таниберген, Заместитель директора Департамента экономической политики и специальных программ Агентства по стратегическому планированию и реформам РК

- 2) Наличие данных и сценариев по секторам

Докладчик: К. Берентаев, Казахский институт экономических исследований при Министерстве энергетики, индустрии и торговли

18:00 Ужин

19:30 - 21:30 Фуршет в доме Т. Стрейта

Среда, 24 февраля, второй день семинара

9:00 - 10:30 **Техническое заседание №4: Опыт Запада в области моделирования**
Председатель: Ф. Гаймонт

Включает следующие выступления:

- 1) Наличие необходимых данных в США и опыт США в создании макроэкономических сценариев

Докладчик: С. Леворн, Руководитель отдела исследований, Global Securities

- 3) Представление Всемирного банка о разработке национальной стратегии Казахстана (кандидатура выступающего еще не определена)

- 4) Использование инструментов моделирования в процессе принятия решений

Докладчик: Д. Алди, Член Совета экономистов при президенте

10:30 Кофе-брейк

11:00 - 12:00 **Техническое заседание №5: Поглотители и положительные эффекты от мер по снижению выбросов парниковых газов**
Председатель: К. МакНамара

- 1) Поглотители и положительные эффекты

Докладчик: П. Карпов, Заместитель директора, Офис по глобальному изменению климата Департамента энергетики

- 2) Потенциал поглотителей в Казахстане

Докладчик: Э. Госсен, Член сельскохозяйственного отделения Национальной Академии наук РК

12:00 - 13:00 *Повышение уровня понимания проблемы климатических изменений и предлагаемая стратегия по снижению выбросов парниковых газов*

Докладчики: С. Елькин, Б. Есекин, Национальный экологический центр

Председатель: А. Голуб

13:00 - 14:00 Обед

14:00 15:00 Обсуждение: *Стратегия будущего: политический курс и институциональные основы как основа для быстрого реагирования на*

климатические изменения - Обсуждение за круглым столом проекта
протокола

Председатель: А. Голуб

15:00 Кофе-брейк

15:30 - 17:00 Обсуждение будущего сотрудничества США и Казахстана в
области уменьшения выбросов парниковых газов

Председатель: А. Голуб

***Technical Seminar on Aspects of Greenhouse Gas Emissions in Kazakhstan
Alatau Sanitorium, 22-24 February 1999***

Monday, February 22:

Evening:

7:00- 9:00 Reception at Alatau

Tuesday, February 23: Seminar, Day 1

9:00- 10:30 Opening remarks by representatives of GOK and USG moderated by J. Moitke and B. Esekin.

10:30: Coffee Break

11:00-1:00 **Technical Theme #1:** *Measurement & Analysis of GHG Emissions Growth*
Moderator - I Birnbaum

- 1) Presentation regarding the status of Climate Change modeling in Kazakhstan, to be conducted by Olga Pilofosova, of KazNIMOSK.
- 2) Presentation regarding state-of-the-art GHG inventories for CO₂ and other gasses, to be conducted by Jennifer Macedonia of EPA

1:00-2:00 Lunch

2:00- 3:00 **Technical Theme #2:** *Strategy of Development of the Energy Sector in Kazakhstan*
Moderator - A. Golub.

- 1) Presentation of the new National Strategy in Energy, (S. Katyshev)
- 2) A view of Greenhouse Gas Emissions from the Energy Sector (Sulimenov)

3:00: Coffee Break

3:30- 5:30 **Technical Theme #3:** *Presentation of the availability of economic data and the status of macroeconomic modeling in Kazakhstan*
Moderator - A Golub.

- 1) Macroeconomic data available (presentation by those responsible for producing Economic Trends Quarterly - Kazakhstan series)
- 2) Macroeconomic scenarios used by the government of Kazakhstan presentation from Ministry of Strategic Planning, (S. Tanibergen)
- 3) Sectoral data and scenarios available presentation from the Kazakhstan Institute of Economic Research Under Ministry of Energy, Industry and Trade (K. Barentaev)

6:00: Dinner

7:30- 9:30 Reception at the home of T. Streit

Wednesday, February 24: Seminar, Day 2

9:00- 10:30 Technical Theme #4: *Western Experience with Modeling*

Moderator - TBA

- 1) A US perspective on data availability and experience in creation of macroeconomic scenarios presented by Global Securities (S. Lawerne)
- 2) A World Bank presentation on development of the *National Strategy Study* for Kazakhstan (TBA)
- 3) The use of economic modeling tools are in decisionmaking in the United States presented by Council of Economic Advisors representative (J. Aldy).

10:30: Coffee Break

11:00-12:00: Technical Theme #5: *Sinks and Ancillary Benefits of GHG mitigation*

Moderator - Ken McNamara

- 1) Sinks and ancillary benefits, presented by Department of Energy representative (P. Karpoff)
- 2) Kazakhstan's sink potential, presented by representative of the Ministry of Agriculture (E. Gossen)

12:00- 1:00: *Improving Public Understanding of Climate Change and a Proposed Integrated Strategy for GHG Emissions Reductions* - Presentation by National Ecological Center representatives (S. Yelkin, B. Esekin)
Moderator - A. Golub.

1:00- 2:00: Lunch

2:00 - 3:00 Discussion: *Strategy for the Future: Politics and Institutions for Effective Response to Climate Change* - Roundtable discussion of proposed protocol.
Moderator - A. Golub.

3:00: Coffee Break

3:30- 5:00: Concluding Discussion: *Roles and Responsibilities: Areas for Kazakh-US Cooperation*. Moderator - A. Golub.

Technical Seminar on Aspects of Greenhouse Gas Emissions in Kazakhstan**22-24 February 1999****Almaty, Kazakhstan****LIST OF INVITEES**

NAME AND ORGANIZATION	ИМЯ И ОРГАНИЗАЦИЯ
Jeffery Miotke Deputy Director Office of Global Climate Change Department of State Room # 639 Ph. 549-639	Джеффри Миотке Заместитель директора Офиса по глобальному изменению климата Государственного департамента
Daniel Balzer Office of Global Climate Change Department of State Room # 640 Ph. 549-640	Даниэль Балзер Офис по глобальному изменению климата Государственного департамента
Victoria Greenfield Economics Bureau Department of State Room # 644 Ph. 549-644	Виктория Гринфилд Бюро по экономике Государственного департамента
Joseph Aldy Member of President's Council of Economic Advisors Room # 645 Ph. 549-645	Джозеф Алди Член Совета экономистов при президенте
Peter Karpoff Senior Economist Office of Economics Department of Energy Room # 646 Ph. 549-646	Питер Карпов Главный экономист офиса экономики Департамента энергетики

Stephanie Bencovic Environmental Engineer Environmental Protection Agency Room # 647 Ph. 549-647	Стефани Бенковик Инженер по природоохранной политике Агентство по охране окружающей среды
Christopher Bordeaux Deputy Director Country Studies Initiatives US Country Studies Program Room # 648 Ph. 549-648	Кристофер Бордо Заместитель директора Country Studies Initiatives US Country Studies Program
Ira Birnbaum Team Leader for Energy Efficiency and Global Climat Change Environment, Energy and Urban Development/ Europe and NIS Bureau USAID Room # 649 Ph. 549-649	Айра Бернбаум Руководитель отдела по рациональному использованию энергетических ресурсов и глобальным климатическим изменениям офиса по окружающей среде, энергетике и урбанизации ЮСАИД
Frederick Guymont Deputy Director Environment, Energy and Urban Development/ Europe and NIS Bureau USAID Room # 650 Ph. 549-650	Фредерик Гаймонт Заместитель директора офиса по окружающей среде, энергетике и урбанизации ЮСАИД
Stephen Lewarne Director of Research and Corporate Finance Central Asia and Caucasus Global Securities Tel. (3272) 509-480	Стивен Леворн Директор отдела исследований и корпоративных финансов по Средней Азии и Кавказу «Global Securities»
Asylzhan Akhmetov Head Mazhilis Ecological Committee Tel. (3172) 326-969 Fax (3172) 327-781 Room # 653 Ph. 549-653	Асылжан Ахметов Руководитель Комитета по экологии при Мажилисе РК

Erbulat Sembayev First Secretary of First Department Ministry of Foreign Affairs Fax (3172) 327-667 Room # 654 Ph. 549-654	Ербулат Сембаев Первый секретарь первого отдела Министерства иностранных дел
Murat Musataev Vice Minister Ministry of Ecology and Natural Resources Tel. (31622) 5-42-69 Fax (31622) 5-06-20 Room # 655 Ph. 549-655	Мурат Мусатаев Вице-министр Министерства экологии и природных ресурсов
Saidmurat Tanibergen Deputy Director Department of Economic Policy and Special Programs Agency on Strategy Planning and Reforms of Republic of Kazakhstan Tel. (3172) 326-398 Fax (3172) 326-358 Room # 656 Ph. 549-656	Саидмурат Таниберген Заместитель директора Департамента экономической политики и специальных программ Агентства по стратегическому планированию и реформам РК
Kalkaman Suleimenov Head Department of Scientific Progress and Environment Ministry of Energy, Industry and Trade Tel. (3172) 102-474 Fax (3172) 337-164 Room # 657 Ph. 549-657	Калкаман Сулейменов Начальник отдела научно-технического прогресса и экологии Министерства энергетики, индустрии и торговли
Alexander Golub Advisor ~~НИИД~~ EPIC Room # 658 Ph. 549-658	Александр Голуб Советник Гарвардский институт международного развития
Kanat Berentayev Kazakh Institute of Economic Research under the Ministry of Energy, Industry and Trade	Канат Берентаев Казахский институт экономических исследований при Министерстве энергетики, индустрии и торговли

Nadezhda Fiedorova Kazakh Institute of Economic Research under the Ministry of Energy, Industry and Trade Tel. (3272) 331-992	Надежда Федорова Казахский институт экономических исследований при Министерстве энергетики, индустрии и торговли
Bulat Esekin Director National Environmental Center Tel. (31622) 5-55-37 Room # 659 Ph. 549-659	Булат Есекин Директор Национального экологического центра
Sergey Elkin Deputy Director National Environmental Center Tel. (31622) 5-55-37 Room # 660 Ph. 549-660	Сергей Елькин Заместитель директора Национального экологического центра
Atamurad Shamen Director Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Атамурад Шамен Директор Казахского института мониторинга климата и окружающей среды
Dmitry Donchuk Research Fellow Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Дмитрий Дончук Научный сотрудник Казахского института мониторинга климата и окружающей среды
Olga Piliphosova Head Climate Change Study Laboratory Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Ольга Пилифосова Руководитель лаборатории по изучению изменения климата Казахского института мониторинга климата и окружающей среды
Irina Eserkepova Senior Research Fellow Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Ирина Есеркепова Старший научный сотрудник Казахского института мониторинга климата и окружающей среды

Svetlana Dolgikh Senior Research Fellow Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Светлана Долгих Старший научный сотрудник Казахского института мониторинга климата и окружающей среды
Svetlana Mizina Senior Research Fellow Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Светлана Мизина Старший научный сотрудник Казахского института мониторинга климата и окружающей среды
Tleusen Temertekov Leading Engineer Kazakh Institute for Environment and Climate Monitoring Tel. (3272) 542-527	Тлеусен Темертеков Ведущий инженер Казахского института мониторинга климата и окружающей среды
Alexander Trofimov President Kazselenergo project Tel. (3272) 392-898	Александр Трофимов Президент Казсельэнергопроекта
Yakov Vasilyev Deputy Director Almatygidroproject	Яков Васильев Заместитель директора Алматыгидропроект
Georgy Papaphanasopulo KAZNIPIENERGO Tel. (3272) 333-936 Fax (3272) 333-298	Георгий Папафанасопуло КАЗНИПИЭНЕРГО
Anatoly Korzhnetsky Main Engineer KAZNIPIENERGO Tel. (3272) 333-549	Анатолий Коржнетский Главный инженер КАЗНИПИЭНЕРГО
Gennady Doroshin Kazakh Scientific and Research Institute of Energy Tel. (3272) 640-771	Геннадий Дорошин Кандидат технических наук Казахский НИИ Энергетики

Sergey Katyshev Head of Strategy Planning Department JSC KEGOC Tel. (3272) 682-730 Fax (3272) 68-43-08	Сергей Катышев Начальник отдела по стратегическому планированию АО « KEGOC»
Ervin Gossen Member of Agriculture Department of National Academy of Sciences of Republic of Kazakhstan Tel. (3272) 543-709 Fax (3272) 543-719	Эрвин Госсен Член сельскохозяйственного отделения Национальной Академии наук РК
Irina Kubassova Head of Department on Harmonization of Legislation Documents Main Law Administration Tel. (3272) 633-284	Ирина Кубасова Начальник отдела по гармонизации законодательных актов Главного правового управления
Baurzhan Duisebaev Deputy of General Director on new technologies Complex Processing of Mineral Raw Materials National Center of Republic of Kazakhstan Tel. (3272) 618-038 Fax (3272) 696-134	Бауржан Дуйсебаев Заместитель Генерального директора по новым технологиям Национального центра комплексной переработки минерального сырья Республики Казахстан
Vladimir Cherednichenko Head Chair of Meteorology Kazakh State University Tel. (3272) 462-615	Владимир Чередниченко Заведующий кафедрой метеорологии Казахского государственного университета
Liliya Dimeeva Senior Research Fellow Institute of Botany Tel. (3272) 61-56-70 Fax (3272) 61-79-38	Лилия Димеева Старший научный сотрудник Института ботаники
Zharas Takenov Senior Sustainable Development Advisor UNDP	Жарас Такенов Старший советник по устойчивому развитию ПРООН

Tel. (3272) 640-970 Fax (3272) 642-608	
Organizers	
Barry Primm Director Office of Energy and Environmental Initiatives USAID Tel. (3272) 507-612 Fax (3272) 507-636 E-mail: bprimm@usaid.gov	Барри Примм Директор офиса энергетики и окружающей среды ЮСАИД
Ken McNamara Environmental Project Specialist Office of Energy and Environmental Initiatives USAID Tel. (3272) 507-612 Fax (3272) 507-636 E-mail: kmcnamara@usaid.gov	Кен МакНамара Специалист по охране окружающей среды офиса энергетики и окружающей среды ЮСАИД
Theodore Streit Energy Policy Specialist Office of Energy and Environmental Initiatives USAID	Теодор Страйт Специалист по энергетике офиса энергетики и окружающей среды ЮСАИД
Nina Kavetskaya Project Management Specialist Office of Energy and Environmental Initiatives USAID Tel. (3272) 507-612 Fax (3272) 507-636 E-mail: nkavetskaya@usaid.gov	Нина Кавецкая Координатор проектов офиса энергетики и окружающей среды ЮСАИД
John Wysham Economic Officer US Embassy Tel. (3272) 507-612 Fax (3272) 507-636	Джон Вайшэм Советник по экономическим вопросам Посольство США
Gulbarshyn Bazheeva Science Specialist US Embassy	Гульбаршин Бажеева Специалист по науке Посольство США

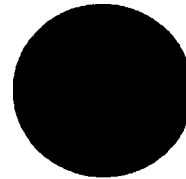
Tel. (3272) 507-612 Fax (3272) 507-636	
David Benedetti Director Global Training for Development Project Tel. (3272) 626-761 Fax (3272) 691-727 E-mail: aed-car@kaznet.kz	Дэвид Бенедетти Директор Региональной программы обучения ЮСАИД для Средней Азии
Saule Davletova Program Specialist Global Training for Development Project Tel. (3272) 626-761 Fax (3272) 691-727 E-mail: aed-car@kaznet.kz	Сауле Давлетова Специалист по программам Региональной программы обучения ЮСАИД для Средней Азии
Daene McKinney Team Leader Environmental Policies and Institutions for Central Asia (EPIC) Program Tel. (3272) 65-46-95 Fax (3272) 64-68-49 E-mail: Daene@aol.com	Дэйн МакКинни Руководитель Программы по природоохранной политике и усилению организационных структур управления ресурсами в Центральной Азии
Theresa Sabonis-Helf Environmental and Energy Policy Advisor Environmental Policies and Institutions for Central Asia (EPIC) Program Tel. (3272) 65-46-95 Fax (3272) 64-68-49 E-mail: theresa@hiid.alma-ata.su	Тереза Сабонис-Хелф Советник по энергетике и природоохранной политике Программы по природоохранной политике и усилению организационных структур управления ресурсами в Центральной Азии
Megan Falvey Program Administrator Environmental Policies and Institutions for Central Asia (EPIC) Program Tel. (3272) 65-46-95 Fax (3272) 64-68-49 E-mail: megan@epicf.almaty.kz	Мэган Фалви Администратор Программы по природоохранной политике и усилению организационных структур управления ресурсами в Центральной Азии

Alma Raisova Environmental and Energy Policy Specialist Environmental Policies and Institutions for Central Asia (EPIC) Program Tel. (3272) 65-46-95 Fax (3272) 64-68-49 E-mail: alma_epic@nursat.kz	Алма Раисова Специалист по энергетике и окружающей среде Программы по природохранной политике и усилению организационных структур управления ресурсами в Центральной Азии
Aliya Sartbayeva Workshops and Training Specialist Environmental Policies and Institutions for Central Asia (EPIC) Program Tel. (3272) 65-46-95 Fax (3272) 64-68-49	Алия Сартбаева Координатор семинаров Программы по природохранной политике и усилению организационных структур управления ресурсами в Центральной Азии

liability - buyer
affects value
→ seller does as well

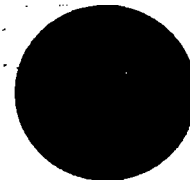
U.S. Greenhouse Gas Emissions Inventory and Projections

Stephanie Benkovic
United States Environmental
Protection Agency



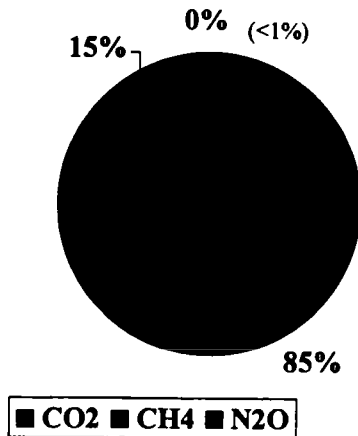
Part I: Emission Estimates

Emission Factor * Activity Level

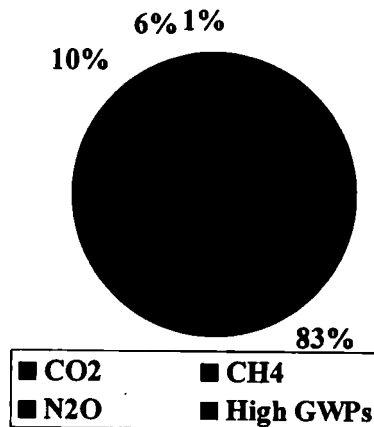


Comparison of Kazakhstan and US 1990 Emissions

National Communication of the
ROK, UN FCCC, 1998



Inventory of US Greenhouse Gas
Emissions and Sinks: 1990-96



IPCC Good Practice Guidelines

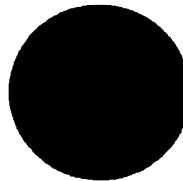
- Article 5 of Kyoto Protocol calls for countries to use 1996 IPCC Guidelines
 - Using IPCC Guidelines is key to a successful national monitoring program for GHG emissions
 - Work is ongoing to improve inventory methods (regional workshops, IPCC report)
- Accuracy of GHG emission inventories increases certainty and could increase value of tradable units

Range of Options for Emission Estimates under IPCC

- Lowest Tier -- default emission factors
- Higher Tiers -- (significantly more accurate)
 - direct measurements, when possible, and
 - disaggregated, specific emissions factors

Key Sources of U.S. CO₂ Emissions/Sequestration

- Fossil fuel combustion (99%) for:
 - energy, heating, industry, transport, industrial processes
- Cement and Lime Manufacture
- Other Industrial Processes
- Land Use Change and Forestry

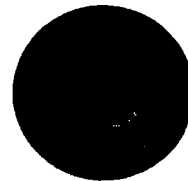


CO₂ Emissions Estimates

- CO₂ emissions from combustion =
 - (fuel consumed * carbon content) - unburned fuel
- Determining fuel consumed
 - aggregate level accounting of national fuel use OR
 - sector or source level accounting of fuel consumed
- Determining carbon content
 - IPCC default fuel specific emission factor
 - local fuel-specific emission factors
 - fuel sampling and analysis

Quality of Non-CO₂ GHG Estimates

- High for many sources
- Trend is toward steady improvement
- The keys:
 - measurement data whenever available
 - high level of disaggregation
 - interaction with researchers

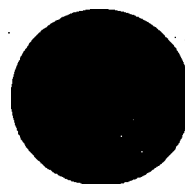


Non-CO₂ Emissions Can Be Estimated Accurately

- CH₄ from Underground Coal Mining: use mine-specific ventilation and recovery measurements (accuracy < ±10%)
- CH₄ from Enteric Fermentation: use country or state-specific emissions factors specific to cattle type and age (accuracy < ±20%)
- N₂O from Adipic Acid Production: use plant specific measurements or monitoring (accuracy < ±5%)
- CH₄ and N₂O from agricultural soils, natural gas systems, and rice cultivation need work to improve methods

Key Sources of U.S. Methane (CH₄) Emissions

- Landfills -33%
- Domesticated Livestock (Enteric Fermentation) - 19%
- Natural Gas and Oil Systems - 19%
- Coal Mining - 17%
- Livestock Manure - 9%
- Other - 1%



Livestock: Disaggregation (CH_4)

- Over 160 million cattle, hogs, sheep etc.
 - Total Emissions = Emissions/Head X Population
- Cattle produce 95% of U.S. livestock CH_4
- Emissions vary with diet, productivity, age, size, type of cattle, region
- Need emissions factors by: Region, Age, and Type (Dairy, Beef, Slaughter, Bulls)



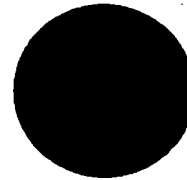
Coal Mining: Direct Measurement (CH_4)

- Underground Mining:
 - 50% of production, 70% of U.S. coal bed CH_4 emissions
 - 100 largest mines > 90% of U.S. coal bed CH_4 emissions
- Ventilation data for all 586 mines
- 20 mines use degasification systems
- Approximately 12 mines use recovered gas
 - gas sales data
 - information from mine operators



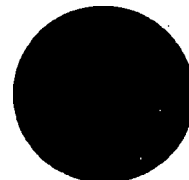
Key Sources of U.S. Nitrous Oxide (N₂O) Emissions

- Agricultural Soil Management - 68%
- Fossil Fuel Combustion - 18%
- Adipic Acid Production - 5%
- Nitric Acid Production - 4%
- Manure Management - 3%
- Other Sources - 2%



N₂O From Agricultural Soils

- IPCC Expert Panel to revise Guidelines (USDA/USEPA):
 - Involved top researchers in field
 - Surveyed latest available literature
 - Created methodologies for additional sources
 - US 1990 estimate rose from 17 to 62 MMTCE
- Future Improvements:
 - Other sources? Irrigation, drainage
 - More study of indirect emissions
 - Measurements/sampling

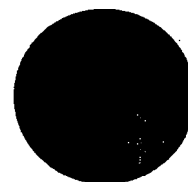


Sources of Fully Fluorinated Compounds (PFCs, HFCs, SF₆)

- Substitution of Ozone Depleting Substances
- Primary Aluminum Production
- Production of HCFC-22 (HFC-23)
- Industrial Processes in Semiconductor Industry
- Electrical Transmission and Distribution
- Magnesium Production and Processing

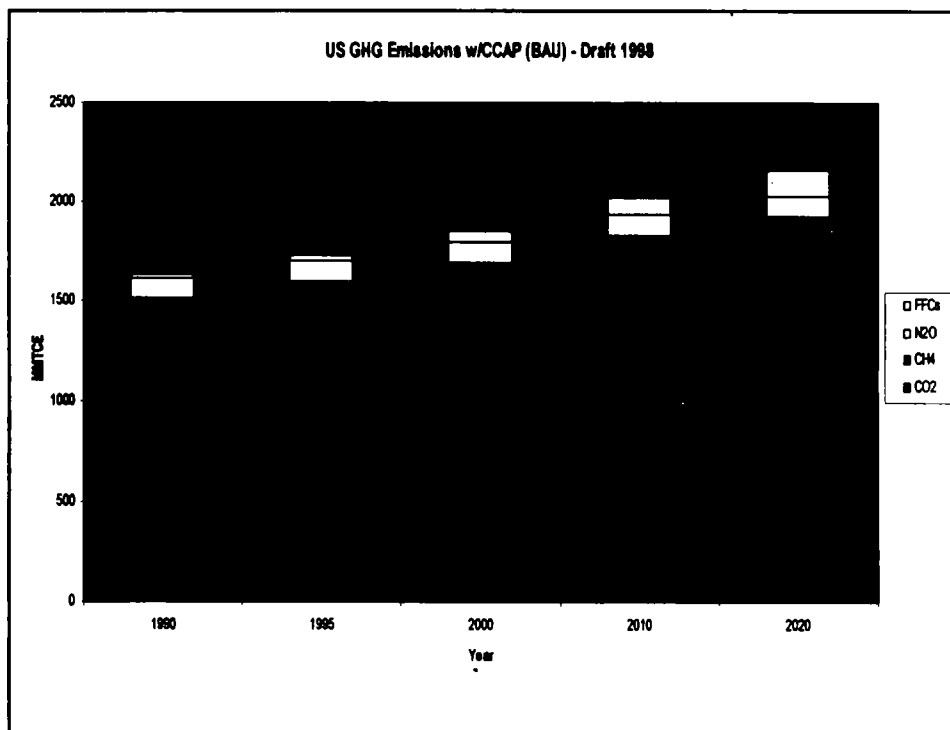
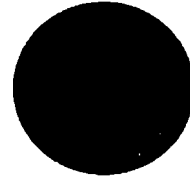
Part II: Projection Inventories

Emission Factor * Activity Level * Growth Factor



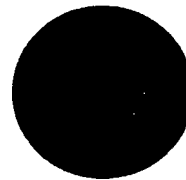
US GHG Emission Projections

- Projections assume that Climate Change Action Plan (CCAP) program funding will be proportional to 1993 funding levels.
- CO₂ projections are gross emissions - no conclusive decision on measurement of changes in carbon stocks/carbon sequestration



Key Assumptions for US Climate Action Report Projections

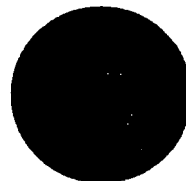
- Population
- Gross Domestic Product (GDP)
- Energy Intensity
- Minemouth Coal Price
- World Oil Price
- Gasoline Price
- Natural Gas Price



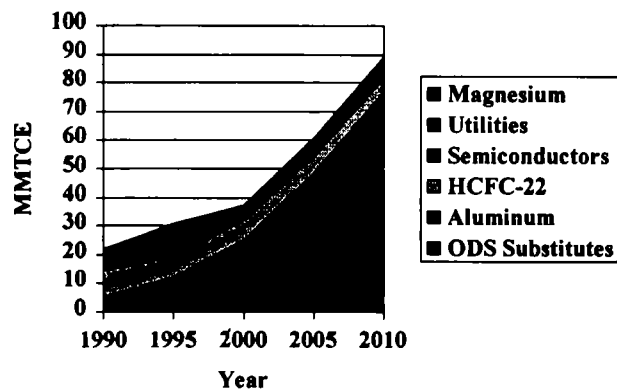
Values Used in Emissions Forecasts

Real GDP (billions of 1995 dollars)	6380	8005	9745	11259
Population (millions)	250	276	299	324
Energy Intensity (Btu per 1995 \$ GDP)	13217	12123	10767	9809
World Oil Price (1995 \$/1000 cf)	23.98	18.20	20.33	22.16
Wellhead Natural Gas (1995\$/1000cf)	1.91	1.85	1.98	2.39
Avg Price Electricity (\$/kwh)	7.20	6.70	6.40	6.10
Avg. Price Gas (1995\$/gall)	1.28	1.37	1.39	1.43

Source: 1997 US Climate Action Report, EIA

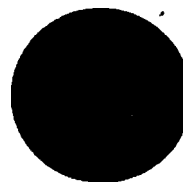


Fully Fluorinated Compounds US Emissions Trends (by source)



100 Year Global Warming Potentials (illustrative list)

- Methane 21
- Nitrous Oxide 310
- HFC-23 11,700
- CF₄ 6,500
- C₂F₆ 9,200
- SF₆ 23,900



Factors That Could Increase Emissions Forecasts

- More rapid growth in electricity demand
- Flat rather than slightly rising real energy prices
- More rapid economic growth
- Cuts in governmental funding for GHG emissions reduction activities
- Slower than expected technological advances

Factors That Could Reduce Emissions Forecasts

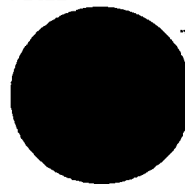
- Slower economic growth
- Higher energy prices
- Increased efficacy of voluntary programs
- Rapid technological advance
- Increased funding for GHG emissions reductions programs
- Unusually mild weather

Uncertainty in Emissions Estimates

- Activity levels and emissions factors contribute to uncertainty
- Improving data and level of disaggregation can reduce uncertainty
- Generally, emissions factors account for more uncertainty than activity levels

Summary

- Accuracy of all emissions estimates can improve by using data and examining emissions source by source (disaggregated)
- Non-CO2 emission estimates are improving
- Accurate information on economic factors will help minimize uncertainties with projection inventories



Technical Seminar on Aspects of Greenhouse Gas Emissions in Kazakhstan
Recommendations for Ongoing Work from the Seminar: Draft

I. Emissions Target

- 1) Kazakhstan will establish a three-part (high, medium, low) Business as Usual Scenario for presentation at/before COP-5.
- 2) Kazakhstan will establish a credible target for presentation at/before COP-5.
- 3) The US and the World Bank will provide assistance with model development, and with evaluation of early Kazakhstani efforts.

II. Increase Understanding of Other Benefits from Kazakhstan Participation

- 1) Kazakhstan's commitment to the treaties will be considerably strengthened by increasing public and policymaker understanding of the potential benefits to Kazakhstan of participation. These include health benefits in urban areas, improvement in the agricultural environment, and the benefits of participation in international emissions trading, such as increased investment, heightened technology transfer and improved tax revenues.
- 2) The US will provide assistance with improving public understanding by support of accessible information.
- 3) The US will provide assistance with educating policymakers on these issues.

III. Inventory Improvements

- 1) Kazakhstan will improve documentation of sources of data used in the inventory and improving transparency of methodology to make Kazakhstan's calculations more accessible to outside experts.
- 2) Kazakhstan will improve (or include) estimates for a broader array of non-CO2 greenhouse gas categories.
- 3) The US will provide assistance related to small gas measurements and sinks measurements.

IV. Regulation

- 1) Kazakhstan needs to develop a deeper understanding of what institutional mechanisms will be needed to participate meaningfully in trading. Kazakhstan will also need to establish a sense of what options will be best for recycling revenues.
- 2) The US will provide assistance to clarify the components of a working regulatory system for a country engaged in trading.
- 3) The US will assist Kazakhstan in examining investment mechanisms, particularly in examining options for recycling revenue from emissions sales.
- 4) The US will provide assistance for better understanding of the mechanisms of forward sales and option sales.

V. Estimation of trading potential for Kazakhstan

- 1) Kazakhstan will improve its understanding of the trading potential available to it through, inter alia, additional analysis concerning the cost of GHG reductions.
- 2) The US will assist with analysis of emissions reductions potential and cost of emissions reductions by sector.
- 3) Kazakhstan will explore further the potential of sinks.

VI. Monitoring and Institutional Development

- 1) The credibility of Kazakhstan's emissions credits will be dependent in part on its credibility of its inventories.
- 2) The US will assist with assessment of current status of Kazakhstan's inventory work and monitoring capability and, as appropriate, make recommendations of how to apply the inventory skills developed to effective monitoring.

VII. Reform of the Energy Sector

- 1) Each Party to the Treaty should resolve domestic issues of how best to encourage reduction of emissions.
- 2) The US will provide assistance for the examination of subsidies, tariffs policy, other measures such as pollution fees and carbon tax.
- 3) The US and the World Bank will examine the implications of VII.2 on Kazakhstan's ability to analyze investments from emissions trading and joint implementation.

VIII. Project Development/ Selection

- 1) Kazakhstan, with the assistance of the World Bank, will need to begin the process of project identification and development, with particular attention towards potential JI Projects
- 2) The US will assist in the further development of skills necessary for comparative project evaluation.
- 3) The US will work with Kazakhstan to enhance its capability to register JI projects.

**Draft Plan of Measures for 1999 in the Republic of Kazakhstan
to the United Nations Framework Convention on Climate Change**

	Measures	Term of Execution	Responsible Ministries
1	Prepare an agreement of RK and USAID on joint activities addressed to GHG emission reductions	January-June 1999	Ministry of Ecology and Industrial Resources
2	Establish an office to implement measures to translate the Kyoto Protocol into reality	January-March 1999	Ministry of Ecology and Industrial Resources
3	Analyze the materials and presentations of parties involved in the 4 th Conference of the Parties of the Convention	December 1998 March 1999	Ministry of Ecology and Industrial Resources Ministry of Foreign Affairs
4	Develop a RK national strategy on reduction of GHG emissions	January-August 1999	Ministry of Ecology and Industrial Resources Ministry of Foreign Affairs Ministry of Economy, Industry and Trade Ministry of Transport and Communications Ministry of Agriculture Ministry of Information and Social Harmony
5	Prepare draft government agreements on RK participation in the Kyoto Protocol mechanisms	January-June 1999	Ministry of Ecology and Industrial Resources Ministry of Foreign Affairs Ministry of Economy, Industry and Trade
6	Prepare and implement measures to coordinate RK and other Convention Parties positions, and their support to succeeding Conferences of the Convention Parties	January-November 1999	Ministry of Foreign Affairs Ministry of Ecology and Industrial Resources
7	Prepare draft concepts, mechanisms and procedures for Kazakhstan participation in global financial mechanisms	January-December 1999	Ministry of Ecology and Industrial Resources Ministry of Economy, Industry and Trade Ministry of Transport and Communications Ministry of Agriculture

	Measures	Term of Execution	Responsible Ministries
8	Participate in international conferences, sessions of Subsidiary Bodies of the Convention; seminars and meetings on climate change	January-December 1999	Ministry of Ecology and Industrial Resources Ministry of Foreign Affairs Ministry of Economy, Industry and Trade Ministry of Transport and Communications Ministry of Agriculture
9	Establish an Office of New Technologies for Climate Protection	January-December 1999	Ministry of Ecology and Industrial Resources Ministry of Economy, Industry and Trade Ministry of Transport and Communications Ministry of Agriculture
10	Carry out activities to attract external assistance to implement measures on reduction of GHG emissions	January-December 1999	Ministry of Ecology and Industrial Resources
11	Take a GHG inventory for 1998	January-August 1999	Ministry of Ecology and Industrial Resources Ministry of Economy, Industry and Trade Ministry of Transport and Communications Ministry of Agriculture
12	Prepare the second National Communication on the United Nations Framework Convention on Climate Change	January 1999 July 2000	Ministry of Ecology and Industrial Resources Ministry of Foreign Affairs Ministry of Economy, Industry and Trade Ministry of Transport and Communications Ministry of Agriculture
13	Inform the public about measures on climate change problems; issue booklets, brochures; release films	January-December 1999	Ministry of Ecology and Industrial Resources Ministry of Economy, Industry and Trade Ministry of Transport and Communications Ministry of Agriculture Ministry of Information and Social Harmony

МАКРОЭКОНОМИЧЕСКИЕ СЦЕНАРИИ РАЗВИТИЯ КАЗАХСТАНСКОЙ ЭКОНОМИКИ НА ПЕРСПЕКТИВУ

К настоящему моменту можно констатировать, что Республика Казахстан вышла на новый этап своего экономического развития.

Основанием для этого служит то, что основные задачи макроэкономической политики 1998 года, несмотря на финансовый кризис в странах Юго-Восточной Азии, России и ряде других стран, практически реализованы. В результате последовательно проводимой в течение 1996-1998 г.г. жесткой монетарной политики, доминантой которой были снижение уровня инфляции и поддержание низкого бюджетного дефицита, в республике удалось достичь макроэкономической стабилизации, что расценивается как создание реальных предпосылок для оживления реального сектора экономики.

С другой стороны, резкое ухудшение мировой конъюнктуры в связи с финансовым кризисом в странах Юго-Восточной Азии и Российской Федерации серьезно осложнило экономическую ситуацию в Казахстане, привело к существенным потерям из-за снижения мировых цен на группу товаров, которые составляют основу казахстанского экспорта. Согласно данным и предварительной оценке Нацстатгентства РК объем реального ВВП в 1998 году снизился по сравнению с 1997 годом на 2,5%.

В целом макроэкономические показатели развития экономики республики которые приведены в таблице 1.

Таблица 1

Динамика основных макроэкономических показателей
функционирования казахстанской экономики в 1996 - 1998 годах

	1996 г.	1997 г.	1998 г.			
			I	II	III	За год
ВВП в текущих ценах, млрд. тенге	1415,7	1679,6	402,8	419,9	448,4	1744,7
ВВП в % к соответствующему периоду предыдущего года	100,5	102,0	101,9	99,5-100,6	98,0-98,5	93,3-97,5

При этом в структуре ВВП произошли некоторые изменения в худшую сторону. В течении этого года в структуре ВВП последовательно снижается доля производства товаров - 34-35% против 37,9% в 1997 г. Доля промышленности составит - 23-24% против 21,4%, сельского хозяйства - менее 9% против 11,5%. Одновременно, доля производства услуг возрастет с 55,9% до 65-66%, доля чистых налогов осталась на уровне 5-6%.

Такая структура близка к структуре ВВП многих развитых стран. Это можно было бы рассматривать как успех экономической политики последних лет, если бы он не был достигнут за счет продолжающегося спада производства в реальном секторе экономики.

Поэтому не достигнута основная цель правительственной программы - прекращение спада производства и начало оживления экономики.

На развитие казахстанской экономики в 1999 и последующих годах будет продолжать оказывать сильное влияние ряд внешних и внутренних факторов, действие которых могут предоставить потенциальную угрозу для экономической безопасности Республики Казахстан. Наиболее важными из них являются:

Сохранение курса проводимой макроэкономической политики, которая направлена на удержание уровня инфляции до нескольких процентов в год и дефицита государственного бюджета в пределах, соответствующих среднемировым стандартам, обеспечение стабильности обменного курса тенге даже в ущерб золотовалютным резервам. Такая политика не учитывает состояние реального сектора экономики, не удовлетворяет требованиям защиты отечественного производителя. Продолжение жесткой финансовой и денежно-кредитной политики ведет к дальнейшему обострению платежного кризиса в республике и в немалой степени способствует спаду производства в реальном секторе экономики.

Снижение мировых цен на группу товаров, которые составляли основу казахстанского экспорта, привело к сокращению экспортных поставок Казахстана. Даже при увеличении или более медленном спаде физических объемов экспорта, экспортоориентированные отрасли промышленности испытывают последствия кризиса, несут убытки из-за сужения рынков сбыта и снижения мировых цен, резко снизилась рентабельность производства экспортоориентированного сектора.

Девальвация валют в ряде стран (в первую очередь в России) при сохранении относительной стабильности тенге за счет сокращения золотовалютного резерва ведет к росту импорта в Казахстан, ухудшает положение внутреннего товаропроизводителя за счет дальнейшего роста конкуренции на внутреннем рынке с импортируемыми товарами.

Рост государственных расходов по обслуживанию внешнего долга страны. Эта проблема усугубляется тем, что не только растут затраты на обслуживание внешнего государственного долга в связи с выплатой основного долга, но и уменьшается экспортный потенциал страны из-за неблагоприятной конъюнктуры мирового рынка.

Социально-экономическое развитие Республики Казахстан в 1999-2003 годах рассматривается в рамках двух наиболее вероятных сценариях, которые направлены на преодоление кризисного состояния экономики республики, создание реальных предпосылок для ее оживления и вывода на траекторию устойчивого роста, что предусмотрено Стратегией развития страны «Казахстан – 2030».

Первый сценарий не предполагает кардинальных изменений в проводимой экономической политике. Это наглядно видно из проектов Индикативного плана на 1999 год и Государственного бюджета на следующий год. Исходя из этих предпосылок были проведены расчеты по оценке условий экономического роста при заданных параметрах денежно-кредитной и бюджетно-налоговой политики на 1998-1999 г.г.

Таблица 2

Расчетные темпы роста ВВП на 1999 год

	1996 год	1997 год	1998 год	1999 год
1	2	3	4	5
ВВП в текущих ценах	1419.90	1679.60	1747,7	1950
Государственные расходы	264.90	318.50	407.00	472,2
Инвестиции – всего,	119.00	115.00	170.00	186,0
в т.ч. государственные	9.50	19.70	25.00	27,9
Государственные расходы и инвестиции.	374.40	413.80	551,8	630,0
Сумма налоговых поступление.	132.90	203.80	276,6	328,4
Норма инвестирования	0.084	0.068	0.09	0,07
Удельный вес налогов в ВВП.	0.094	0.121	0.122	0,155
Мультипликатор инвестиций	3.792	4.059	3.23	3,09
Относительный дефицит бюджета	0.093	0.068	0.073	0,074
Уровень инфляции	0.287	0.138	0.07	0,095
Инфляционный потенциал	0.550	0.280	0.18	0,18
Пороговая инфляция	0.401	0.212	0.072	0,098
Расчетные темпы прироста ВВП	-0.096	-0.053	-0.09	-0,04

В этом случае, как видно из таблицы 2, в 1999 году в лучшем случае наиболее вероятен экономический спад до 4%. В этом случае можно предположить, что экономического роста не будет и Республика Казахстан выходит на траекторию стагнации экономики.

Для разрешения этой ситуации необходимо же сейчас пересмотреть подходы к формированию макроэкономической политики в сторону увеличения совокупного спроса.

Второй сценарий в этой связи предполагает кардинальное разрешение проблемы неплатежей, в том числе путем **дополнительной денежной эмиссии девальвации национальной валюты**, чтобы ликвидировать демонетизацию экономики, привести уровень развития денежного хозяйства в соответствие с потребностями реального сектора экономики.

Денежная эмиссия и другие экстренные меры должны быть дополнены одновременно с нетарифными мерами по защите отечественных товаропроизводителей.

По этому сценарию можно ожидать, что до середины 1999 года экономический спад продолжится, а после расшивки неплатежей возможно снижение темпов экономического спада и, даже, незначительный экономический рост к началу 2000 года. В результате принятия этого сценария,

вероятнее всего то, что казахстанская экономика выйдет на траекторию продолжительной стагнации или экономического роста с темпами 2-3% в год.

Длительное сохранение достаточно низких цен на нефть на мировом рынке, по мнению ряда экспертов, продержится до 2000 года. На развитие топливно-энергетического сектора в определенной мере скажется отсутствие реальной договоренности между прикаспийскими странами о статусе Каспийского моря и принципах раздела каспийского шельфа. Затягивание переговоров по этой проблеме в определенной мере скажется на начале работ по освоения каспийского шельфа и строительству сети евразийских магистральных нефтепроводов.

На развитие нефтедобычи в Республике Казахстан, особенно в части увеличения экспортной нефти, сильное влияние окажет развитие геополитической ситуации, в частности политика стран ОПЕК, ослабление санкций ООН против Ирака, а также гармонизация взаимоотношений по взаимопоставкам нефти с Россией.

На развитие экспортного потенциала республики безусловное влияние окажет неблагоприятная конъюнктура цен на мировом рынке на черные и цветные металлы, зерно и ряд других продуктов, которые составляют основу казахстанского экспорта.

В соответствии с этим можно предполагать, что развитие отраслей, связанных с производством экспортной продукции, окажется ниже, чем предусмотрено проектом первого варианта. Более вероятным становится сохранение их производства на уровне 1997 года или уровне, предусмотренных планом текущего года.

В целом по данному сценарию, можно ожидать, что даже при реализации Правительством Республики Казахстан своей Программы действий в полном объеме в рассматриваемом периоде не удастся преодолеть экономический кризис и экономика республики к 2003 г. возможно будет находиться на уровне 1997 —1998 годов.

В соответствии с этим при помощи модели межотраслевого баланса были проведены предварительные расчеты по оценке макроэкономических показателей экономического развития республики на 1999-2003 годы.

Расчеты показали, что в зависимости от темпов инфляции ожидается рост реального ВВП в 2003 г. по отношению к 1998 г. от 1-2% до 8-9% против 21.7%, предусмотренных планом. Более низкие темпы экономического роста обусловлены учетом влияния тех внешних и внутренних факторов, которые не были учтены при подготовке целевых показателей Индикативного плана. Реалистичность данного прогноза определяется тем, что, как показали расчеты, отраслевая структура промышленности за это период не претерпит существенных изменений. Однако при реализации этого сценария имеется возможность усиления позитивного воздействия на экономический рост отдельных факторов и уменьшения негативного влияния других факторов путем проведения активной государственной политики, усиления роли государственного регулирования экономики.

В этой связи можно считать, что к 2003 году казахстанская экономика окажется на уровне 1998 года или несколько выше.

Расчеты на более длительную перспективу показали, что в зависимости от выбранного варианта развития страны, который определяется макроэкономической политикой, можно с большой долей вероятности предполагать, что за пределами 2003 года развитие казахстанской экономики

будет идти незначительными среднегодовыми темпами роста около 2-3% в 2004-2010 и 4-5% в 2011-2020 г.г. Только за пределами 2020 года возможно при благоприятных условиях ускорение темпов экономического роста 7-10% в среднем за год.

В соответствии с выполненными расчетами объем реального ВВП достигнет дореформенного периода не ранее 2015-2020 года. Важно отметить, что преимущественное развитие получают в основном отрасли тяжелой промышленности, которые сохраняют специализацию республики в международном разделении труда. При этом показатели энергоемкости и электроемкости ВВП останутся на достаточно высоком уровне.

Таблица 3

Основные показатели энергопотребления Республики Казахстан.

Показатели	1990	1991	1992	1993	1994	1995	1996	1997
Валовой внутренний продукт (в ценах 1995 г.), млрд. тенге	2782	2373	2036	1598	1141	992,5	972,6	982,3
Электропотребление, млрд. кВт. ч	104,7	101,6	97,0	89,1	79,4	73,4	67,6	57,1
Производство электроэнергии, млрд. кВт. ч	87,4	86,0	82,7	77,4	66,4	66,6	61,9	52,2
Дефицит (-), избыток (+) электроэнергии, млрд. кВт. ч	-17,3	-15,6	-14,3	-11,7	-13,0	-6,8	-5,7	-4,9
Потребление топливно-энергетических ресурсов, млн. т у.т.	100,5	100,2	98,8	95,5	85,0	81,2	76,4	72,5
Удельная электроемкость ВВП, кВт. Ч/тенге	0,038	0,043	0,048	0,056	0,069	0,074	0,070	0,058
Удельная энергоемкость ВВП, т у.т./тыс. тенге	0,036	0,042	0,048	0,06	0,074	0,082	0,078	0,074
Потребление электроэнергии на душу населения, кВт. ч/чел	6271	6069	5760	5241	4698	4395	4230	3600
Валовое потребление первичных ТЭР на душу населения, т.у.т./чел	6,02	5,99	5,84	5,62	5,03	4,86	4,74	4,57

За рассматриваемый период удельная электроемкость ВВП увеличилась более, чем в 1,5 раза, энергоемкость - более, чем в 2 раза. Такой показатель НТП как потребление электроэнергии на душу населения снизился более, чем на 40%. В этой связи важной перспективно проблемой становится проблема энергосбережения, т.к. после 2020 года при неблагоприятных условиях Казахстан по уровню выбросов может достигнуть уровня 1990 г.

MACROECONOMIC SCENARIOS OF THE KAZAKHSTAN'S ECONOMY DEVELOPMENT FOR THE PROSPECTS

By now it may be ascertained that the Republic of Kazakhstan get out on the new stage of its economic development.

The basis of this is the fact that the principal objectives of the macroeconomic policy of 1998, despite the financial crisis in the South-East Asian countries, Russia and some other countries, have been practically realized. As the result of the tough monetary policy consistently pursued during 1996-1998 the dominant of which was the decrease of the inflation level and maintaining of low budget deficit, the macroeconomic stabilization in the Republic has been attained that can be considered as creation of the actual prerequisites for revival of the economy.

On the other hand, a drastic deterioration of the world economic situation in the context of the financial crisis in the countries of the South-Eastern Asia and in the Russian Federation has seriously aggravated the economic standing of Kazakhstan, resulted in substantial financial losses through lowering of the world market prices for the group of the goods forming the basis of the Kazakhstan's export. According to the data and estimates of the National Statistical Agency of the RK the volume of the actual gross domestic product (GDP) in 1998 has dropped by 2.5% in 1998 as compared with 1997.

As a whole, the macroeconomic indicators of the Republic's economy development are given in Table 1.

Table 1

**Dynamics of the Principal Macroeconomic Indicators
of the Kazakhstan Economy Functioning in 1996-1998**

	1996	1997	1998			
			I	II	III	In a year
GDP in current prices, Billion Tenge	1415.7	1679.6	402.8	419.9	448.4	1744.7
GDP in % to the respective period of previous year	100.5	102.0	101.9	99.5 - 100.6	98.0 - 98.5	93.3 - 97.5

Therewith in the GDP structure certain changes have occurred to the worse side. During this year the share of the goods production in the GDP structure is subsequently decreased : 34-35% as compared with 37.9% in 1997. The share of the industry will account for 23-24% as against 21.4% and of the agriculture: less than 9% as against 11.5%. Concurrent with this, the share of the production of services will increase from 55.9% to 65-66%, the share of the net taxes remained on the level of 5-6%.

Such structure is similar to the GDP structure of many developed countries. This could be considered as success of the economic policy of the recent years if it was not achieved at the account of the continuing decline of production in the real sector of economy.

Thus, the principal objective of the government program: the stoppage of decline in production and beginning of the economy revival - has not been achieved.

A series of internal and external factors which can bring the potential threat to the economic safety of the Republic of Kazakhstan will continue to have a pronounced effect on development of Kazakhstan's economy in 1999 and during the succeeding years. The most important of these factors are the following:

Maintaining of the course of the macroeconomic policy conducted which is aimed at restraining of the inflation level within few percentages during the year and of the government budget deficit within the limits corresponding to the average world standards, and ensuring of the exchange rate stability even to the prejudice of the gold reserves. Such policy doesn't consider the state of the real sector of economy, doesn't meet the requirements of the domestic producer protection. Continuation of tough financial and monetary policy leads to further aggravation of the payment crisis in the Republic and in considerable degree contributes to the decline of production in the real sector of economy.

Decrease of the world market prices for the group of the goods constituting the basis of the Kazakhstan's exports tended to reduction of the export deliveries from Kazakhstan. Even in case of increase or slower decline of the physical volumes of exports, the export-oriented branches of the industry are subjected to the implications of the crisis, incur losses because of the sales market narrowing and decline in the world market prices, and the production profitability of the export-oriented sector has drastically dropped.

The currency devaluation in a number of countries (first of all in Russia) on retaining the relatively stability of Tenge by reducing the gold and foreign currency reserves produces the growth of imports to Kazakhstan, aggravates the state of the domestic commodity producer owing to the further growth of competition on the domestic market with the import goods.

Increase in the national spending for servicing the foreign debt of the country. This challenge is aggravated by the fact that not only the expenditures grow for servicing the foreign national debt in connection with repayment of the primary debt, but the export potential of the country decreases owing to the unfavorable world market conditions.

The social and economic development of the Republic of Kazakhstan in 1999-2003 should be considered in the context of two more probable scenarios aimed at the overcoming of the crisis state of the republic's economy, creation of actual prerequisites for its revival and placing it on the path of sustainable growth which is stipulated by the Strategy for the country development «Kazakhstan - 2030».

Table 2**The Estimated Rates of the GDP Growth for 1999**

Indicators	1996	1997	1998	1999
1	2	3	4	5
GDP in current prices	1419.90	1679.60	1747.7	1950
Public expenditures	264.90	318.50	407.00	472.2
Investments - total	119.00	115.00	170.00	186.0
incl. governmental	9.50	19.70	25.00	27.9
Public expenditures and investments	374.40	413.80	551.8	630.0
Amount of the tax proceeds	132.90	203.80	276.6	328.4
Investment rate	0.084	0.068	0.09	0.07
Specific weight of taxes in the GDP	0.094	0.121	0.122	0.155
Investment multiplier	3.792	4.059	3.23	3.09
Relative budget deficit	0.093	0.068	0.073	0.074
Level of inflation	0.287	0.138	0.07	0.095
Inflation potential	0.550	0.280	0.18	0.18
Threshold inflation	0.401	0.212	0.072	0.098
Estimated growth rates of the GDP	-0.096	-0.053	-0.09	-0.04

The first scenario doesn't presuppose the fundamental alterations in the economic policy perused. It is clearly obvious from the drafts of the Indicative Plan for 1999 and the National Budget for the next year. With these assumptions the estimates were made as to assessment of the economic growth conditions at the given parameters of the monetary, budget and tax policy for 1998-1999.

In this case, as viewed in Table 2, in 1999, at best, the most probable there will be the economic recession up to 4%. In such a situation, it may be supposed that there will be no economic growth, and the Republic of Kazakhstan goes to the path of the stagnation of the economy.

In order to settle this situation it is essential just now to revise the approaches to the macroeconomic policy formation towards increase in the aggregate demand.

In this connection **the second scenario** contemplates the major solution of the problem of non-payments, in particular, by supplementary emission of money and the national currency devaluation in order to eliminate the demonetization of the economy and to bring the level of the monetary economy development into agreement with the requirements of the real sector of economy.

The currency emission and other emergency measures should be at the same time supplemented by the non-tariff actions for protecting the domestic commodity producers.

By this scenario it may be anticipated that up to the middle of 1999 the economic recession will be still in progress but following the settlement of the problem of non-payments the decrease in the rates of the economic recession is possible and, even, a minor economic growth is feasible to the beginning of 2000. Most likely the result of this scenario adoption is bound to be the fact that the Kazakhstan's economy will go to the path of prolonged stagnation or of the economic growth with the rates 2-3% per year.

The long-term maintenance of relatively low prices for the oil on the world market, to some experts opinion, will stay up to 2000. The lack of the actual agreement among the pre-Caspian countries as to the Caspian Sea status and principles for the Caspian shelf sharing will make a certain impact on development of the fuel and power sector. The delay in the negotiations concerning this challenge will tell, to a certain extent, on the beginning of the Caspian shelf development and construction of the Euro-Asian main oil pipe-lines network.

A profound effect on the oil production development in the Republic of Kazakhstan will be made by development of the geopolitical situation, in particular, the policy of the OPEC countries, the easing of the UNO sanctions against Iraq, as well as harmonization of interrelations as to the mutual oil deliveries with Russia.

Undoubtedly, the development of the export potential of the Republic will be effected by unfavorable world market price conditions for the ferrous and non-ferrous metals, grain and series of other products constituting the base of the Kazakhstan's export.

In line with this it may be assumed that development of the branches associated with output of the export products will be lower than it was stipulated by the draft of the first version. It becomes more probable that their production will be maintained on the level of 1997 or on the level specified by the current year plan.

As a whole by this scenario it may be anticipated that even in case of complete realization by the Government of the Republic of Kazakhstan of its Program of Actions, during the period under review it would be impossible to overcome the economic crises, and the economy of the Republic up to 2003 will be likely on the level of 1997-1998.

In line with this some preliminary estimates were made by the intersectoral balance model for assessment of the macroeconomic indicators of the economic development of the Republic for 1999-2003.

The calculations indicated that depending upon the inflation rates the growth of the actual GDP is anticipated in 2003 as compared with 1998 from 1-2% to 8-9% against 21.7% stipulated by the plan. The more low rates of the economic uprising have been defined considering the effect of those external and internal factors which were not taken into account while preparing the target indicators of the Indicative Plan. The

feasibility of this forecast is defined by the fact that, as calculations showed, the sectoral structure of the industry over this period will remain without essential changes. However on realizing this scenario there is a possibility to strengthen the positive influence on the economic growth of certain factors and to decrease the negative influence of other factors by pursuing active national policy and intensifying the role of the national regulation of the economy.

In this connection it may be considered that by 2003 the Kazakhstan's economy will be on the level of 1998 or somewhat higher.

The computations for more long perspective have demonstrated that depending on the country development version selected being specified by the macroeconomic policy it may be assumed that beyond 2003 the development of Kazakhstan's economy will go with slight average annual growth rates about 2-3% in 2004-2010 and 4-5% in 2011-2020. Only after 2020, under favorable conditions, the acceleration of the economic growth rates is possible at 7-10% in average per year.

Table 3

**The Primary Indicators of the Power Consumption
in the Republic of Kazakhstan**

Indicators	1990	1991	1992	1993	1994	1995	1996	1997
Gross domestic product (in current prices of 1995), billion Tenge	2782	2373	2036	1598	1141	992.5	972.6	982.3
Power consumption, billion kWh	104.7	101.6	97.0	89.1	79.4	73.4	67.6	57.1
Electricity generation billion kWh	87.4	86.0	82.7	77.4	66.4	66.6	61.9	52.2
Deficit (-), surplus (+) of electric power, billion kWh	-17.3	-15.6	-14.3	-11.7	-13.0	-6.8	-5.7	-4.9
Consumption of fuel and energy resources (FER), mln t of equivalent fuel	100.5	100.2	98.8	95.5	85.0	81.2	76.4	72.5
GDP specific energy intensity, kWh/Tenge	0.038	0.043	0.048	0.056	0.069	0.074	0.070	0.058
GDP specific power intensity, t of fuel equiv./thous. Tenge	0.036	0.042	0.048	0.06	0.074	0.082	0.078	0.074
Power consumption per capita, kWh/man	6271	6069	5760	5241	4698	4395	4230	3600
Gross consumption of primary FER per capita, t of fuel equiv./man	6.02	5.99	5.84	5.62	5.03	4.86	4.74	4.57

According to the calculations made, the real GDP volume will reach the pre-reforms period level no earlier than in 2015-2020. It is important to notice, that the preferential development will be given to, primarily, the branches of the heavy industry which maintain specialization of the Republic in the international division of labor. In this case the indicators of the GDP power intensity and energy intensity will remain on relatively high level.

Over the period reviewed the specific energy - output ratio of the GDP increased by more than 1.5 times, power intensity - more than by 2 times. Such GDP indicator as the electric power consumption per capita decreased by more than 40%. In line with it the problem of the energy saving becomes the essential problem in the future because after 2020 Kazakhstan, under unfavorable conditions, as to the emissions levels may attain the level of 1990.

*Technical Seminar on Aspects of Greenhouse Gas Emissions in Kazakhstan
Recommendations for Ongoing Work from the Seminar: Draft*

- Emissions*
- I. *Kyoto Target*
- 1) Establish a three-part (high, medium, low) Business as Usual Scenario for presentation at/before COP-5.
 - 2) Establish a credible target for presentation at/before COP-5.
 - 3) The US will provide assistance with model development, and with evaluation of early Kazakhstani efforts. US will also provide legal advice/political support for Kazakhstan in their preparations for COP-5 to the extent that it is desired by the Kazakh government.
 - 4) The US will provide assistance in development of end-use demand forecasting to refine the BAU scenario.
 - 5) The US will provide econometric assessment of likely response to price signals (to refine the BAU scenario)

- II. *Increase Understanding of Other Benefits from Kazakhstan Participation*
- Specific*
- 1) Kazakhstan's commitment to the treaties will be considerably strengthened by increasing public and policymaker understanding of the potential benefits to Kazakhstan of participation. These include health benefits in urban areas, improvement in the agricultural environment, impact on investment processes, and impact on tax revenues.
 - 2) The US will provide assistance with improving public understanding by support of accessible information.
 - 3) The US will provide assistance with educating policymakers on these issues.

- III. *Inventory Improvements*
- 1) Improving documentation of sources of data used in the inventory and improving transparency of methodology to make Kazakhstan's calculations more accessible to outside experts.
 - 2) Improve (or include) estimates for a broader array of non-CO₂ greenhouse gas categories.
 - 3) The US will provide assistance for development of a demonstration project for small gas measurements and sinks measurements.

- IV. *Regulation*
- 1) Kazakhstan needs to develop a deeper understanding of what institutional mechanisms will be needed to participate meaningfully in trading. Kazakhstan will also need to establish a sense of what options will be best for recycling revenues.
 - 2) The US will provide training to clarify the components of a working regulatory system for a country engaged in trading.
 - 3) The US will assist Kazakhstan in examining investment mechanisms, particularly in examining options for a facility for recycling revenue from emissions sales.
 - 4) The US will provide assistance for better understanding of the mechanisms of forward sales and option sales, together with a plan for how to use these to Kazakhstan's benefit.

- V. *Estimation of trading potential for Kazakhstan*
- 1) In order for Kazakhstan to understand the trading potential available to it, additional analysis concerning the cost of reductions will be essential.
 - 2) The US will assist with analysis of emissions reductions potential, and cost of emissions reductions by sector.
 - 3) The US will assist with analysis of sink potential in Kazakhstan

- VI. *Monitoring and Institutional Development*
- 1) The credibility of Kazakhstan's emissions credits will be dependent in part on its credibility in monitoring.
 - 2) The US will assist with assessment of current status of monitoring capability, make recommendations of how to apply the inventory skills developed to effective monitoring.

VII. Reform of the Energy Sector

- 1) Each member of the treaties must resolve domestic issues of how best to encourage reduction of emissions.
- 2) The US will provide assistance for the examination of subsidies, tariffs policy, other measures such as pollution fees and carbon tax

VIII. Project Development/ Selection

- 1) Kazakhstan will need to begin the process of project identification and development, with particular attention towards potential JI Projects
- 2) The US will assist in the further development of skills necessary for comparative project evaluation.
- 3) The US will explore with Kazakhstan the merits of establishment of an appropriate center for Project development and to provide analytical support to the Kazakh government on this issue

Assistance that would be desirable:

- engaging the labs
- assistance to refine the BAU